



CRITICAL AREA STUDY & BUFFER MITIGATION PLAN

FOR

TIBBETTS CROSSING
CITY OF ISSAQUAH, WA

Wetland Resources, Inc. Project #17173

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1.0 INTRODUCTION

Wetland Resources, Inc. (WRI) conducted multiple site investigations between November 2014 and June 2017 to locate jurisdictional wetlands and streams within, and in the vicinity of, the investigation area defined on King County tax parcel 2924069041 (See Figure 1). The 21.94-acre subject property is located at 7932 Renton-Issaquah Road SE in Issaquah, Washington; accessible east of Renton-Issaquah Road SE. It's located within the Cedar/Sammamish Watershed, Water Resources Inventory Area 8. The site is further located as a portion of Section 29, Township 24N, Range 06E, W.M.

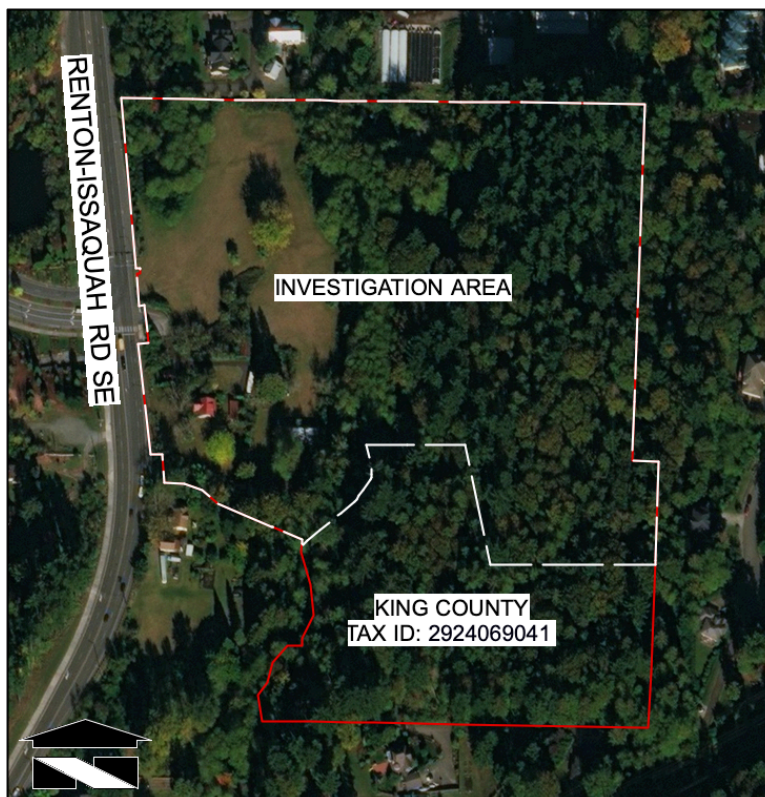


Figure 1 Aerial of the subject property and investigation area defined by WRI (not to scale).

Six wetlands (Wetlands A through F) and three streams (Tibbetts Creek, Stream A, and Stream B) were identified within, and in the vicinity of, the investigation area. The boundaries and categories of Wetlands A, B, and C were previously approved and are vested to the old critical area regulations (prior to December 28, 2016). These features were reviewed during the 2017 site visit, and conditions remain the same as the approved delineation. The intent of this document is to characterize all identified critical areas and buffers in the vicinity of the within and in the vicinity of the investigation area, assess potential impacts associated with the applicant's development proposal, and provide mitigation adequate to compensate for all proposed impacts.

1.1 SITE DESCRIPTION

The subject property is partially developed, with a single-family residence, barn, several outbuildings, and a gravel driveway with parking area in the western region of the site. The east side of the property is composed of undeveloped forest, with a few pedestrian/bike trails. Renton-Issaquah Road SE borders the west side of the property. Surrounding land use is primarily single-family residential, with large lots to the north and south, with denser residential development to the east of the subject property.

The delineation focused on the northern portion of the subject property, as defined by the investigation area (See Sheet 1 in Appendix D). Tibbetts Creek bisects the investigation area, separating it into two distinct regions. The western side includes pasture area and the aforementioned development. The eastern portion is undeveloped and composed primarily of native forested vegetation. A mix of grasses (reed canary grass, bluegrass, and bent grass) and shrubs (cut-leaf blackberry and Himalayan blackberry) vegetate the pastured areas. Within the forested areas, vegetation is typical of Puget Sound lowland forest, consisting primarily of western red cedar, western hemlock, big-leaf maple, red alder, salmonberry, vine maple, Pacific willow, red elderberry, Himalayan blackberry, Osoberry, and sword fern.

Six wetlands (Wetland A through F) and three streams (Tibbetts Creek, Stream A, and Stream B) were identified within, and adjacent to, the investigation area. No other critical areas were identified within or adjacent to the investigation area.

2.0 REVIEW OF EXISTING INFORMATION

Prior to conducting the site investigation, public resource information was reviewed to gather background information on the subject property and the surrounding area in regards to wetlands, streams, and other critical areas. These sources included the USFWS National Wetlands Inventory (NWI), USDA/NRCS Web Soil Survey, Snohomish County PDS Map Portal, WDFW SalmonScape mapping tool, and WDFW Priority Habitat and Species (PHS).

- The National Wetlands Inventory depicts two wetland areas on the site, one in the center and one in the northwest area of the site.
- NRCS maps soils on the subject property as Everett very gravelly sandy loam (8 to 15 percent slopes), mixed alluvial land, Alderwood gravelly sandy loam (15 to 30 percent slopes), and Kitsap silt loam (2 to 8 percent slopes).
- King County iMap indicates the presence of one wetland and three streams on the west side of property.
- WDFW SalmonScape shows two streams on-site, with documented salmon presence in Tibbetts Creek.
- WDFW Priority Habitat and Species (PHS) shows a wetland area on-site along Tibbetts Creek and within the northwest corner of the site. Multiple species of salmonids are mapped within Tibbetts Creek. In addition, the township that the subject property is located in is mapped as containing a communal roost(s) for Townsend's Big-eared Bat and Yuma myotis.

3.0 WETLAND & STREAM DETERMINATION

3.1 STREAM DETERMINATION METHODOLOGY

Streams observed on the subject property were identified using the methodologies described in the *Washington State Department of Ecology (DOE), Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State* (Anderson et al. 2016). The Washington State Shoreline Management Act (SMA) defines ordinary high water mark as,

“...that mark that will be found by examining the bed and banks and ascertaining where the presence and action of waters are so common and usual, and so long continued in all ordinary years, as to mark upon the soil a character distinct from that of the abutting upland, in respect to vegetation as that condition exists on June 1, 1971, as it may naturally change thereafter, or as it may change thereafter in accordance with permits issued by a local government or the department: *PROVIDED*, that in any area where the ordinary high water mark cannot be found, the ordinary high water mark adjoining salt water shall be the line of mean higher high tide and the ordinary high water mark adjoining fresh water shall be the line of mean high water.”

3.2 WETLAND DETERMINATION METHODOLOGY

A boundary determination was conducted for the on-site wetland. Wetland conditions were evaluated and delineated using routine methodology described in the *Corps of Engineers Wetlands Delineation Manual (Final Report; January 1987)*, except where superseded by the *2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*, referred to as 2010 Regional Supplement). Our findings are consistent with these manuals. The following criteria descriptions were used in the boundary determination of on-site wetlands:

- 1.) Examination of the site for hydrophytic vegetation (species present and percent cover);
- 2.) Examination of the site for hydric soils;
- 3.) Determining the presence of wetland hydrology

3.2.1 Hydrophytic Vegetation Criteria

The manuals define hydrophytic vegetation as the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present. One of the most common indicators for hydrophytic vegetation is when more than 50 percent of a plant community consists of species rated “Facultative” and wetter on lists of plant species that occur in wetlands.

3.2.2 Soils Criteria and Mapped Description

The manuals define hydric soils as those that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. Field indicators are used for determining whether a given soil meets the definition for hydric soils.

Four soil units are mapped on-site: Everett very gravelly sandy loam (8 to 15 percent slopes), mixed alluvial land, Alderwood gravelly sandy loam (15 to 30 percent slopes), and Kitsap silt loam (2 to 8 percent slopes).

Everett very gravelly sandy loam (8 to 15 percent slopes) is made up of somewhat excessively drained soils that are underlain by very gravelly sand. These soils formed in sandy and gravelly glacial outwash deposits, under conifers. The O-horizon is composed of slightly decomposed plant material. The A-horizon consists of very dark brown soil color. The B-horizon consists of dark brown soil color. The C-horizon consists of dark yellowish brown soil color. Available water capacity is low. Included within this soil unit are the Alderwood and Indianola soil series. Permeability is rapid.

Mixed alluvial land consists of nearly level areas of unconsolidated alluvium deposited by streams. The alluvium is generally stratified and ranges widely in texture. It is subject to frequent changes caused by stream overflow, but has been in place long enough for vegetation to become established.

Alderwood gravelly sandy loam (15 to 30 percent slopes) is described as a moderately well drained soil on till plains. It is moderately deep over a hardpan. This soil formed in glacial till. Typically, the surface layer is very dark grayish brown gravelly sandy loam about 7 inches thick. The upper part of the subsoil is dark yellowish brown and dark brown very gravelly sandy loam about 23 inches thick. Included in this unit are small areas of soils that have a stony or bouldery surface layer and areas of McKenna soils, Norma soils, and Terric Medisaprists in drainageways on plains. Also included are small areas of Everett, Indianola, and Ragnar soils on terraces and outwash plains. Included areas make up about 15 percent of the total acreage. Permeability of this soil is moderately rapid above the hardpan and very slow through it. Available water capacity is low.

Kitsap silt loam (2 to 8 percent slopes) is described as an undulating soil is on low terraces of the major valleys of the area. The A horizon ranges from very dark brown to dark brown. The B horizon ranges from dark yellowish brown to dark brown and from silt loam to silty clay loam. Some areas are up to 10 percent included Alderwood gravelly sandy loam; some are up to 5 percent the very deep, sandy Indianola soils, and some are up to 5 percent the poorly drained Bellingham, Tukwila, and Seattle soils. Water flows on top of the substratum in winter. Permeability is moderate above the substratum and very slow within it. Available water capacity is moderate to moderately high.

Soils found on-site are consistent with the above mapped soils.

3.2.3 Hydrology Criteria

The 2010 Regional Supplement defines wetland hydrology as “areas that are inundated (flooded or ponded) or the water table is less than or equal to 12 inches below the soil surface for 14 or more consecutive days during the growing season at a minimum frequency of 5 years in 10.”

During the early growing season, wetland hydrology determinations are made based on physical observation of surface water, a high water table, or saturation in the upper 12 inches. Outside of the early growing season, wetland hydrology determinations are made based on physical

evidence of recent inundation or saturation (i.e. water marks, surface soil cracks, water-stained leaves).

3.3 BOUNDARY DETERMINATION FINDINGS

3.3.1 Wetland A

2004 DOE Rating: Category IV

Cowardin Classification: Palustrine, Emergent, Persistent, Saturated.

City of Issaquah Standard Buffer: 40 feet

Wetland A is a small, slope wetland located along the west edge of the subject site adjacent to Renton-Issaquah Road Southeast. Vegetation within this wetland consists primarily of grasses, including: reed canary grass (*Phalaris arundinacea*; FACW), bluegrass (*Poa* sp.), and bent grass (*Agrostis*, sp.). Soils were saturated to the surface at the time of the delineation. Soils in the wetland area are typically a black (10YR 2/1) sandy loam with strong brown (7.5YR 4/6) redoximorphic features. These soils meet hydric soil indicator F6 Redox Dark Surface. Saturated soils were observed.

This wetland received an overall score of 29 points on the Wetland Rating Form, with a moderate habitat score of 9 points. In the City of Issaquah, Category IV wetlands with low habitat scores require standard 40-foot buffers.

3.3.2 Wetland B

2004 DOE Rating: Category III

Cowardin Classification: Palustrine, Forested, Broad-leaved Deciduous, Intermittently Flooded.

City of Newcastle Standard Buffer: 50 feet

Wetland B is a depressional wetland located in the northeast corner of the subject property. It extends slightly off-site to the north and appears to terminate along an adjacent driveway. Observed plant species within this wetland include: red alder (*Alnus rubra*; FAC), Sitka willow (*Salix sitchensis*; FACW), salmonberry (*Rubus spectabilis*; FAC), hardhack (*Spiraea douglasii*; FACW), lady fern (*Athyrium filix-femina*; FAC), creeping buttercup (*Ranunculus repens*; FAC), skunk cabbage (*Lysichiton americanus*; OBL), bluegrass (*Poa* sp.), and bent grass (*Agrostis*, sp.). The soils within the wetland are typically very dark gray (10YR 3/1) silt loam in the upper layer. The sublayer is typically a dark grayish brown (2.5Y 4/2) silt loam with dark yellowish brown (10YR 4/6) redoximorphic features. These soils meet hydric soil indicator F3 Depleted Matrix. Saturated soils were observed.

This wetland received an overall score of 41 points on the Wetland Rating Form, with a low habitat score of 17 points. In the City of Issaquah, Category III wetlands with low habitat scores require standard 50-foot buffers.

3.3.3 Wetland C

2004 DOE Rating: Category III

Cowardin Classification: Palustrine, Forested, Broad-leaved Deciduous, Intermittently Flooded.

City of Issaquah Standard Buffer: 50 feet

Wetland C is a somewhat linear, depressional wetland associated with Tibbetts Creek, which appears to extend off-site to the north. Observed species within this wetland include: red alder (*Alnus rubra*; FAC), salmonberry (*Rubus spectabilis*; FAC), Himalayan blackberry (*Rubus armeniacus*; FAC), reed canary grass (*Phalaris arundinacea*; FACW), and giant horsetail (*Equisetum telmateia*; FACW), bluegrass (*Poa sp.*), and bent grass (*Agrostis, sp.*). The soils within the wetland are typically very dark brown (10YR 2/2) sandy loam in the upper layer. The sublayer is typically a very dark brown (10YR 2/2) sandy clay loam with dark yellowish brown (10YR 3/6) redoximorphic features. These soils meet hydric soil indicator F6 Redox Dark Surface. Saturated soils were observed.

This wetland received an overall score of 38 points on the Wetland Rating Form, with a low habitat score of 18 points. In the City of Issaquah, Category III wetlands with low habitat scores require standard 50-foot buffers.

3.3.4 Wetland D

2004 DOE Rating: Category III

Cowardin Classification: Palustrine, Scrub-Shrub, Broad-leaved Deciduous.

City of Issaquah Standard Buffer: 50 feet

Wetland D is a small, depressional wetland on the east side of Tibbetts Creek located near the northern boundary of the subject property, extending off-site to the north. Vegetation within this wetland includes Himalayan blackberry (*Rubus armeniacus*; FAC), Pacific willow (*Salix lasiandra*; FACW), and red elderberry (*Sambucus racemosa*; FACU). Soils within the wetland were generally very dark grayish brown (10YR 3/2) with brown (7.5YR 4/4) and a sandy clay loam texture in the upper layer. The sublayer was generally grayish brown (2.5Y 5/2) with strong brown (7.5YR 5/6) redoximorphic features and a sandy clay loam texture. These soils meet hydric soil indicator F3 Depleted Matrix. Soils were saturated at 12 inches below the soil surface at the time of the June 2017 site investigation. In addition, secondary indicators of hydrology, Geomorphic Position (D2) and Water-Stained Leaves (B9) were observed.

This wetland received an overall score of 38 points on the Wetland Rating Form, with a low habitat score of 16 points. In City of Issaquah, Category III wetlands with low habitat scores require standard 50-foot buffers.

3.3.5 Wetland E

2004 DOE Rating: Category III

Cowardin Classification: Palustrine, Forested, Needle-leaved Evergreen.

City of Issaquah Standard Buffer: 50 feet

This wetland is a linear slope wetland located in the southeast region of the investigation area. Vegetation within this wetland includes of western red cedar (*Thuja plicata*; FAC), red alder (*Alnus rubra*; FAC), salmonberry (*Rubus spectabilis*; FAC), piggy-back plant (*Tolmeia menziesii*; FAC), and sword fern (*Polystichum munitum*; FACU). Soils in the wetland area are typically a black (10YR 2/1)

sandy clay loam from 0 to 18 inches below the soil surface. At the time of the June 2017 site investigation, soils were saturated to the surface, associated with a high water table.

This wetland received an overall score of 32 points on the Wetland Rating Form, with a low habitat score of 16 points. In City of Issaquah, Category III wetlands with low habitat scores require standard 50-foot buffers.

3.3.6 Wetland F

2004 DOE Rating: Category II

Cowardin Classification: Palustrine, Forested, Broad-leaved Deciduous, Seasonally Flooded/Saturated.

City of Issaquah Standard Buffer: 75 feet

This wetland is a depressional wetland located in the central region of the subject property, associated with Tibbetts Creek. Vegetation within this wetland includes red alder (*Alnus rubra*; FAC), salmonberry (*Rubus spectabilis*; FAC), piggy-back plant (*Tolmiea menziesii*; FAC), reed canarygrass (*Phalaris arundinacea*; FACW), and scouringrush horsetail (*Equisetum hyemale*; FACW). Soils within Wetland F were generally very dark gray (10YR 3/1) with dark brown (7.5YR 3/4) redoximorphic features from 0 to 16 inches below the soil surface. At the time of the June 2017 site investigation, soils were saturated to the surface, associated with a high water table.

This wetland received an overall score of 53 points on the Wetland Rating Form, with a low habitat score of 19 points. In the City of Issaquah, Category II wetlands with low habitat scores require standard 75-foot buffers.

3.3.7 Tibbetts Creek

City of Issaquah Rating: Class 2

Cowardin Classification: Riverine, Lower Perennial, Unconsolidated Bottom, Cobble-Gravel.

City of Issaquah Standard Buffer: 100 feet

Tibbetts Creek enters the site from the south and flows north through the center of the property, eventually flowing into Lake Sammamish. A tributary (Stream A) to Tibbetts Creek enters the site from the west and flows east along the southern border. Tibbetts Creek flows into Lake Sammamish. Tibbetts Creek has documented presence of Sockeye, Winter Steelhead, Resident Coastal Cutthroat, and Coho, as well as presumed presence (based on lack of gradient barrier) of Fall Chinook. The portion of Tibbetts Creek on-site ranged from 12 to 28 feet in width, with an average width of 17.4 feet across the subject property.

3.3.8 Stream A

City of Issaquah Rating: Class 2

Cowardin Classification: Riverine, Lower Perennial, Unconsolidated Bottom, Cobble-Gravel.

City of Issaquah Standard Buffer: 100 feet

Stream A is a tributary to Tibbetts Creek that enters the site from the west and flows east along the boundary of the subject property. Stream B is a tributary to Tibbetts Creek, with no observed blockage to fish passage at the confluence of the two streams. Therefore, it is presumed salmonids

use this stream. Stream A is classified as a Class 2 stream with salmonids and receives a standard buffer of 100 feet per IMC 18.10.785.

3.3.9 Stream B (Outside Investigation Area)

City of Issaquah Rating: Class 2

Cowardin Classification: Riverine, Lower Perennial, Unconsolidated Bottom.

City of Issaquah Standard Buffer: 100 feet

Stream B is located south of the investigation area and was not delineated. Its location is estimated on the attached Critical Areas Study Map (Appendix C). Stream B is a tributary to Tibbetts Creek that enters the site from the east and flows west until it meets Tibbetts Creek, approximately 60 feet north of where Tibbetts Creek and Stream A meet. Stream B is a tributary to Tibbetts Creek, with no observed blockage to fish passage at the confluence of the two streams. Therefore, it is presumed salmonids use this stream. Stream B is classified as a Class 2 stream with salmonids and receives a standard buffer of 100 feet per IMC 18.10.785.

3.3.10 Non-wetland Areas

Vegetation in the non-wetland area west of Tibbetts Creek is comprised primarily of maintained lawn/pasture, with trees and shrubs immediately adjacent to the creek. Vegetation within the non-wetland area of the subject site includes: big leaf maple (*Acer macrophyllum*; FACU), vine maple (*Acer circinatum*; FAC), Osoberry (*Oemleria cerasiformis*; FACU), Himalayan blackberry (*Rubus armeniacus*; FAC), western sword fern (*Polystichum munitum*; FACU), creeping buttercup (*Ranunculus repens*; FAC), bluegrass (*Poa* sp.), and bent grass (*Agrostis* sp.). Non-wetland soils on the west side of the property generally consist of very dark grayish brown (10YR 3/2) or dark olive brown (2.5Y 3/3) in the top layer with a sub layer of dark yellowish brown (10YR 3/6, 10YR 4/6). The soil textures ranged from a sandy loam to a sandy clay loam.

In non-wetland areas east of Tibbetts Creek, vegetation includes western red cedar (*Thuja plicata*; FAC), western hemlock (*Tsuga heterophylla*; FACU), Himalayan blackberry (*Rubus armeniacus*; FAC), red huckleberry (*Vaccinium parvifolium*; FACU), salmonberry (*Rubus spectabilis*; FAC), sword fern (*Polystichum munitum*; FACU), vanilla leaf (*Achlys triphylla*; UPL), and lady fern (*Athyrium filix-femina*; FAC). Soils in these areas are generally a very dark brown to very dark grayish brown (10YR 2/2, 10YR 3/2) with a silty loam texture in the upper layer. In the sublayer, soils are generally a dark brown to dark yellowish brown (10YR 3/3, 10YR 3/4) with a sandy loam texture in the sublayer. No saturation or high water table was observed in these areas.

Given that the dominant vegetative community in these areas is not hydrophytic, direct hydrologic indicators are lacking, and hydric soils are absent in these areas, it appears that areas mapped as non-wetland do not meet criteria for wetlands.

4.0 WILDLIFE

During June 2017, site visit, various songbirds were observed in the area and frog song was heard near the wetlands. As previously mentioned, WDFW Priority Habitat and Species (PHS) shows a wetland area on-site along Tibbetts Creek and within the northwest corner of the site. Additionally, multiple species of salmonids are mapped within Tibbetts Creek, and the township that the subject property is located in is mapped as containing communal roost(s) for Townsend's Big-eared Bat and Yuma myotis.

In addition, the following wildlife is expected to use the area. Avian species expected to use the subject site include: American crow (*Corvus brachyrhynchos*), American robin (*Turdus migratorius*), house finch (*Carpodacus mexicanus*), black-capped chickadee (*Poecile atricapillus*), dark-eyed junco (*Junco hyemalis*), various woodpecker species, Great blue heron (*Ardea herodias*), brown creeper (*Certhia americana*), and various waterfowl. Mammals expected to use this site include: Virginia opossum (*Didelphis virginiana*), shrews (*Sorex spp.*), eastern gray squirrel (*Sciurus carolinensis*), raccoon (*Procyon lotor*), and eastern cottontail rabbits (*Sylvilagus floridanus*), Columbian black-tailed deer (*Odocoileus hemionus columbianus*), and coyotes (*Canis latrans*). Other wildlife expected to use this site include: pacific tree frog (*Hyla regilla*), northwestern salamander (*Ambystoma gracile*), and rough-skinned newt (*Taricha granulosa*).

5.0 PROJECT DESCRIPTION

The applicant is proposing to construct a 20-lot subdivision and associated infrastructure on the subject site. An easement for a pedestrian trail will be dedicated as part of the proposed development. In order to accommodate the necessary point of entry to the site and a bridge crossing to reach the east side of the stream, buffer impacts will occur. Mitigation for buffer impacts will be provided through a combination of designating additional buffer area and buffer enhancement. Buffer averaging is proposed to modify the buffer along the lots 6 - 11 and 15 and 16. Details of the buffer impacts and buffer averaging are provided in *Sections 6 and 7, Wetland & Buffer Averaging and Tibbetts Creek Buffer Impacts and Mitigation*, of this report. In order to reduce the potential impacts of this development, the project is proposing the following minimization measures (see Table 1).

Potential Disturbance	Activities/Cause of Disturbance	Proposed Measures to Minimize Impacts
Lights	<ul style="list-style-type: none"> Residential use 	Lights that may reach on-site wetlands from residential lots are rear yard lights, which will typically be used for short-term duration and controlled manually. No lights will be located on the perimeter of the wetlands, just along the road.
Noise	<ul style="list-style-type: none"> Residential use 	The project site is situated along a busy arterial. On-site traffic will be limited to residents and guests who will primarily use driveways and street parking.
Toxic runoff	<ul style="list-style-type: none"> Residential use Landscaping 	All runoff from this new development will be collected/treated in a manner consistent with stormwater treatment standards and will meet state water quality standards.
Stormwater runoff	<ul style="list-style-type: none"> Residential use Landscaping 	Stormwater will be collected/treated in a manner consistent with the WA Dept. of Ecology 2005 Stormwater Management Manual for Western Washington and City of Issaquah standards.
Change in Water regime	<ul style="list-style-type: none"> Lawns Impermeable surfaces 	Stormwater will be routed to infiltration and dispersion trenches along the outer edge of buffer for Tibbetts Creek. This will maintain the hydrology to the wetland and stream buffers.
Pets/Human disturbance	<ul style="list-style-type: none"> Residential use 	Wetlands, streams, and buffers will be enclosed in separate tracts. Fencing and Critical Area signs will be installed along the edge of on-site buffers adjacent to development.

Table 1 - Disturbance Minimization

6.0 WETLAND & STREAM BUFFER AVERAGING

The applicant is proposing to average the buffers of Wetland B, Wetland F, Tibbetts Creek, and Stream A. The proposed buffer averaging plan complies with the criteria listed in IMC 18.10.650.D(5) and 18.10.790.D(6). All IMC citations relevant to wetland buffer and stream width averaging criteria are presented below in *italics*, followed by applicant responses in standard text.

1. *The proposed site plan demonstrates efforts to avoid and minimize wetland/stream and wetland/stream buffer impacts;*

The current proposal avoids all impacts to the on-site streams and wetlands and has minimized buffer averaging and buffer impacts to the greatest extent possible, given the constraints of the site (including access, as well as wetland and stream locations).

2. *Buffer width averaging is consistent with the best available science and will not adversely impact functions or values;*

The areas of buffer reduction and addition for Wetland B are both composed of maintained pasture, thus, the functions and values of Wetland B's buffer will be maintained. Similarly, the areas of buffer reduction and addition for Wetland F are both forested, thus, the functions and values of Wetland F's buffer will be maintained.

The areas of Tibbetts Creek's buffer proposed for reduction are primarily maintained lawn/pasture and non-native Himalayan blackberry, which do not provide a high level of protection. The area of buffer addition (west of Tibbetts Creek) is of similar vegetative structure to the areas of buffer reduction, while the remainder of proposed buffer addition east of Tibbetts Creek is mature, native forest. The areas of Stream A proposed for reduction are maintained pasture, associated with the existing residence on site. The areas of buffer addition are of similar vegetative composition and forested area. Replacing maintained, homogenic buffer area with natively vegetated, forested area will provide a lift to the functions and values of Tibbetts Creek's and Stream A's buffers by better moderating stormwater runoff, reducing soil erosion potential, and providing quality habitat for wildlife to perch, find refuge, and native food sources.

Overall, the proposed buffer width averaging plan is expected to deliver a lift in terms of buffer functions on-site, as it results in increased vegetative/structural diversity and an increase in total buffer area to be protected in perpetuity.

3. *The total area within the wetland/stream buffer after averaging is not less than the area within the standard buffer prior to averaging. The location of the replacement buffer area shall be contiguous to the standard buffer to be averaged;*

All areas of buffer averaging addition are contiguous to the standard buffer. The amount of proposed buffer averaging reduction and addition were calculated for Wetland B, Wetland F, Tibbetts Creek, and Stream A separately. Because the reduction to the buffer of Stream A is so minimal (reducing the buffer by 3 feet maximum) and it is infeasible to locate the entire additional buffer between Stream A and the proposed development, the applicant will locate the remaining 120 square feet of additional buffer to the east of Tibbetts Creek. Since Stream A is a tributary of Tibbetts Creek and both provide habitat for fish, modifying the buffer maintains the functions of this critical area buffer per IMC 18.10.390, which is to "*protect critical areas from degradation in various ways including the following: stabilizing...protecting plant and animal species and biotic communities associated with the critical area; and reducing disturbances to the resources to the critical area typically caused by the activities of humans and domestic animals.*" As the reduction area is small and a permanent protective fence will be installed along the final buffer line, thus reducing disturbance to the buffer of Stream A, this reduction and area of addition contiguous with Stream A's distributary, Tibbetts Creek.

The buffer averaging reductions and additions are listed in the table below.

Critical Area	Buffer Averaging Reduction	Buffer Averaging Addition	Net Gain in Total Buffer Area
Wetland B	977 square feet	1,770 square feet	+793 square feet
Wetland F	45 square feet	45 square feet	0 square feet
Tibbetts Creek	5,615 square feet	5,615 square feet	0 square feet
Stream A	190 square feet	190 square feet	0 square feet

Table 2 - Buffer Averaging Reduction and Addition Areas

4. *The buffer width shall not be reduced by more than twenty-five (25) percent of the standard buffer width at any location, unless a variance is approved in accordance with IMC 18.10.430;*

The buffer widths of Wetland B, Wetland F, Tibbetts Creek, and Stream A are not reduced by more than 25 percent by buffer averaging. See Table 3, below.

Critical Area	Standard Buffer	Narrowest Point in Proposed Buffer Averaging	Percent Standard Buffer Width Reduced
Wetland B	50 feet	37.5 feet	25 percent
Wetland F	75 feet	73 feet	93 percent
Tibbetts Creek	100 feet	76 feet	24 percent
Stream A	100 feet	97 feet	3 percent

Table 3 - Standard and Proposed Reduced Buffer Widths

5. *A maximum of fifty (50) percent of the buffer perimeter on a site may be reduced by buffer averaging;*

The buffer perimeters of Wetland B, Wetland F, Tibbetts Creek, and Stream A are not reduced by more than 50 percent through buffer averaging.

Critical Area	Buffer Perimeter (on-site)	Length of Buffer Perimeter Averaged	Percent of Perimeter Averaged
Wetland B	697 feet	251 feet	38 percent
Wetland F	112,144 feet	50 feet	Less than 1 percent
Tibbetts Creek	1,701 feet	201 feet	12 percent
Stream A	157 feet	357 feet	44 percent

Table 4 - Percent of On-site Buffer Perimeter Averaged

6. *Buffer averaging shall consider physical characteristics on a site, including but not limited to existing wetland and buffer vegetation, slopes, floodplain, hydrology, surface drainage, and association with nearby wetlands and/or streams. Buffer averaging shall not be allowed within the designated floodway of streams;*

The proposed buffer averaging plan will maintain a greater level of functions and values than what is currently provided by on the site. There will be a net gain of buffer area on the site and an increase the area of forested buffer on the site. The proposed areas of buffer addition are located

between the development and affected features and composed of similar or higher quality vegetation than that of the buffer reduction areas. Please see *Section 9, Buffers Functions & Values Assessment*, for a detailed buffer functions and values analysis.

7. *Buffer averaging credit shall not be allowed in areas already protected by the critical area regulations.*

All proposed buffer addition areas are not currently protected by critical area regulations.

7.0 TIBBETTS CREEK BUFFER IMPACTS & MITIGATION

The applicant is proposing to construct a bridge spanning Tibbetts Creek in order to access Lots 17 through 20, on the western side of the stream. Impacts to the buffer of Tibbetts Creek and subsequent mitigation are discussed in *Section 8, Tibbetts Creek Crossing Buffer Impacts & Mitigation*.

7.1 TIBBETTS CREEK CROSSING

Per IMC 18.10.775, no structures shall be permitted within streams or stream buffer except as outlined in subsection A, which states that stream crossings may be allowed only if they meet the requirements below. All IMC citations relevant to stream crossing criteria are presented below in *italics*, followed by applicant responses in standard text.

1. All road and utility crossings shall use bridges or other construction techniques which do not disturb the stream bed or bank; however, in the case of Class 2, 3 or 4 streams, appropriate methods demonstrated to provide fisheries protection may be used if the applicant demonstrates that such methods and their implementation will pose no harm to the stream and will not inhibit migration of fish and will accommodate one hundred (100) year flood flows as established by the City. This shall be accomplished through bridge crossing design and/or appropriate flood control facilities constructed as part of the project design. Any structure spanning a stream shall be designed so the supporting foundation is outside the ordinary high water mark;

The applicant is proposing to construct a bridge across Tibbetts Creek (Class 2 stream). Construction will not disturb the stream bed or bank. The foundation/abutments for the bridge will be located outside the ordinary high water mark and outside of the floodplain of Tibbetts Creek.

2. All crossings shall be constructed during summer low flow and be timed to avoid stream disturbance during periods when use is critical to salmonids;

The crossing will be constructed during summer low flow and will avoid stream disturbance during periods when use is critical to salmonids.

3. Crossings shall not occur over salmonid spawning areas unless no other possible crossing site exists on the subject property;

As WDFW (PHS Map & SalmonScape) indicates that the on-site portion of Tibbetts Creek serves as breeding/rearing habitat for Winter Steelhead and Coho, thus salmonid spawning areas may be present on the site. There is no way to access the east side of the site without crossing Tibbetts

Creek. The applicant will acquire all necessary permits for this component of the project (including Hydraulic Permit Approval) and incorporate WDFW's design recommendations.

4. Crossings shall not diminish the flood carrying capacity of the stream;

The proposed stream crossing has been designed so that no infrastructure will be constructed within the floodplain. The crossing will not diminish the flood carrying capacity of the stream.

5. Underground utility crossings shall be located at a preferred depth of four (4) feet below the maximum depth of scour for the base flood predicted by a Washington State licensed civil engineer and be constructed in a manner approved by the Washington State Department of Fisheries; and

The applicant is proposing to locate all utility lines on the bridge crossing the stream. No underground utilities are proposed under the stream channel.

6. Crossings shall be minimized and serve multiple purposes and properties whenever possible.

There is one proposed crossing that will serve multiple properties (4) on the western side of Tibbetts Creek. All utilities for these lots will be located on the bridge as well.

7.2 TIBBETTS CREEK CROSSING BUFFER IMPACTS & MITIGATION

As a result of the proposed stream crossing, permissible by IMC 18.10.775 (discussed in detail above), 6,915 square feet of permanent impacts to the buffer of Tibbetts Creek are proposed. Per IMC 18.10.795(B)(2), "*Replacement or enhancement is required when the City permits or approves the alteration of a stream buffer. There will be no net loss of stream functions on a development proposal site and no impact on stream functions above or below the site due to the approved alterations.*" As such, to compensate for the 6,915 square feet of stream buffer impacts associated with the crossing, the applicant proposes to replace the lost buffer area by designating 7,625 square feet of additional stream buffer between Tibbetts Creek and the development in the east.

Approximately 15 percent of the portion Tibbetts Creek buffer to be permanently impacted is composed of maintained lawn/pasture and non-native Himalayan blackberry, while the remainder of the impacted area is forested. The entirety of the proposed replacement buffer is forested and greater in area than the area impacted. The proposed mitigation via buffer replacement will result in a greater amount of forested buffer located between Tibbetts Creek and the proposed development, thus acting as additional screening for the stream. As such, the proposed stream buffer impacts and replacement will not result in a net loss or stream function and will not impact stream functions up or downstream, thus meeting the requirements of IMC 18.10.795(B)(2).

8.0 WETLAND BUFFER IMPACTS & MITIGATION

Access to the property is currently just south of Wetland A. In order to avoid wetland impacts that would be associated with constructing access off of the bridge that is adjacent to Wetland A, the applicant is proposing to continue to access the property south of Wetland A. This location will avoid all wetland impacts, but will result in permanent impacts to the wetland buffer. A total of 615 square feet of buffer will be impacted. Mitigation for the permanent buffer impact will be provided through designating 520 square feet of additional buffer and 1,000 square feet of enhancement plantings, resulting in a 2.47:1 mitigation to impact ratio, exceeding the mitigation to impact ratio required by IMC 18.10.720(B)(2). The enhancement plantings will provide additional protective screening to Wetland A.

8.1 BUFFER ENHANCEMENT PLANTINGS (1,000 SQUARE FEET)

Common Name	Latin Name	Size	Spacing	Quantity
Douglas fir	<i>Pseudotsuga menziesii</i>	1 gallon	10'	2
Big leaf maple	<i>Acer macrophyllum</i>	1 gallon	10'	2
Cascara	<i>Rhamnus purshiana</i>	1 gallon	10'	2
Serviceberry	<i>Amelanchier alnifolia</i>	1 gallon	5'	7
Nootka rose	<i>Rosa nutkana</i>	1 gallon	5'	7
Red elderberry	<i>Sambucus racemosa</i>	1 gallon	5'	7
Salmonberry	<i>Rubus spectabilis</i>	1 gallon	5'	7
Snowberry	<i>Symphoricarpos albus</i>	1 gallon	5'	7

Trees will be planted along the north edge of the enhancement planting area to avoid any future maintenance issues along the roadway.

9.0 BUFFER FUNCTIONS AND VALUES ASSESSMENT

The methodology for this functions and values assessment is based on professional opinion developed through past field analyses and interpretation. This assessment pertains specifically to the wetlands and buffer on site, but is characteristic of similar wetland systems found throughout western Washington.

9.1 EXISTING CONDITIONS

Water Quality

Vegetated wetland buffers obstruct water flow, thereby decreasing water velocity, allowing infiltration into the soil, and reducing soil erosion potential. The majority of the buffer area on-site is pasture area used for grazing cows. The two stream buffers contain shrub and forested areas. This vegetation allows for infiltration and absorption of precipitation. The forested areas provide a moderate level for this function. The pasture areas provide a low level for this function.

Hydrologic functions

Wetland buffers help to moderate water level fluctuations. Buffer vegetation impedes the flow of runoff, increases the humus content of soil (greater adsorption capacity), and preserves soil composition as intense rainfall hits the ground. Buffer within the forested areas perform this

function at a moderate level in the forested areas, while the pasture areas provide a low level for this function.

Wildlife Habitat

Many birds, mammals, and amphibians use wetland and stream buffers for some part of their life needs. Their use of these sites is dependent on the valuable edge habitat found at the wetland/upland border. Buffer vegetation on the site consists of both forested and pasture areas. The on-site forested buffer contains multiple vegetation strata in the understory. The opportunity for perching, refuge, and availability of native food sources provides wildlife habitat. These areas provide a moderate to high level of functions. However, the lack of vegetative diversity and native species in the pasture area limits the food sources available, and those areas provide limited refuge opportunities. The pasture areas provide a low level of wildlife habitat functions.

9.2 POST CONSTRUCTION BUFFER FUNCTIONS AND VALUES

The forested buffer areas will remain intact, and will continue to provide the same level of functions as they do in their existing condition. The buffer reduction areas are composed of lawn/pasture grass and Himalayan blackberry and will be replaced with area of similar composition, thus, there will be no loss of high level of stormwater moderation as well as native food sources, refuge, and other quality habitat features. A portion of Tibbetts Creeks' buffer addition and the entirety of the additional buffer designated as mitigation for the proposed stream impacts, is composed of mature forested vegetation. (see *Section 6, Wetland Buffer & Stream Buffer Width Averaging*).

Overall, the on-site wetlands and streams will benefit from a gain in forested buffer area. The proposed mitigation plan will increase the total amount of buffer on the site by 8,418 square feet, while increasing the amount of forested buffer area. Increasing the quantity and quality of buffer throughout the project site and designating additional buffer area that contains forest with multi-strata understory will improve wildlife habitat, water quality, and hydrologic functions. This will result in a greater amount of higher quality buffer area to be protected in perpetuity.

10.0 BUFFER ENHANCEMENT PLAN SUCCESS & COMPLIANCE

10.1.1 Criteria for Success

Upon completion of the proposed mitigation project, an inspection by a qualified biologist will be made to determine plan compliance. A compliance report will be supplied to the City of Issaquah within 30 days after the completion of planting. A landscape professional or wetland professional will perform condition monitoring of the plantings annually in the fall. A written report describing the monitoring results will be submitted to the City after each site inspection of each monitored year. Final inspection will occur five years after completion of this project. The contracted consultant will prepare a report as to the success of the project.

10.1.2 Mitigation Plan Objective

The objective of this buffer enhancement plan is to compensate for buffer impact through installation of native plants adjacent to the impact area. This objective will be accomplished if the project meets the definition of success below.

10.1.3 Definition of Success

The planting areas shall meet the following performance standards:

- a) End of Year 1: 100 percent survival of newly planted species and less than 10 percent cover of weedy/invasive species,
- b) End of Year 3: 80 percent survival of newly planted species and less than 10 percent cover of weedy/invasive species,
- c) End of Year 5: at least 70 percent aerial cover of native woody plant species, mitigation plantings must contain at least 6 native tree/shrub species, and less than 15 percent cover of weedy/invasive species. Volunteering native species will be included in the aerial cover calculation.

The species mix should resemble that proposed in the planting plans, but strict adherence to obtaining all of the species shall not be a criterion for success.

10.2 PROJECT MONITORING PROGRAM

Requirements for monitoring project:

- 1. Initial compliance/as-built report
- 2. Site inspection (twice per year) for five years
- 3. Annual reports (one report submitted during each monitored year)

10.2.1 Purpose for Monitoring

The purpose for monitoring this mitigation project shall be to evaluate its success. Success will be determined if monitoring shows at the end of five years that the definitions of success stated below are met. The property owner shall grant access to the mitigation area for inspection and maintenance to the contracted landscape and/or wetland specialist and City of Issaquah during the monitoring period or until the project is evaluated as successful.

10.2.2 Monitoring

Monitoring shall be conducted twice annually for five years in accordance with the approved Mitigation Plan. The monitoring period will begin once the City receives written notification confirming the mitigation plan has been implemented and City staff inspects the site and issues approval of the installation.

10.2.3 Vegetation Monitoring

Sampling points or transects will be established for vegetation monitoring and photo points will be established from which photos will be taken throughout the monitoring period. Permanent sampling points must be identified on the mitigation site plans in the first monitoring report (they may be drawn on approved plans by hand). Each sampling point shall detail herbaceous, shrub, and tree coverage. Monitoring of vegetation sampling points shall occur once per monitored year.

10.2.4 Photo points

No less than three permanent photo points will be established within the mitigation areas. Photographs will be taken from these points to visually record condition of the enhancement area.

Photos shall be taken annually between May 15 and September 30 (prior to leaf drop), unless otherwise specified.

10.2.5 Monitoring Report Contents

Monitoring reports shall be submitted by December 31 of each year during the monitoring period. As applicable, monitoring reports must include descriptions / data for:

1. Site plan and vicinity map
2. Historic description of project, including date of installation, current year of monitoring, restatement of mitigation / restoration goals, and performance standards
3. Plant survival, vigor, and areal coverage for every plant community (transect or sampling point data), and explanation of monitoring methodology in the context of assessing performance standards
4. Slope condition, site stability, any structures or special features
5. Wetland and buffer conditions, e.g., surrounding land use, use by humans, and/or wild and domestic creatures
6. Observed wildlife, including amphibians, avians, and others
7. Assessment of nuisance / exotic biota and recommendations for management
8. Color photographs taken from permanent photo-points that shall be depicted on the monitoring report map

10.3 MAINTENANCE

The mitigation areas will require periodic maintenance to remove undesirable species and replace vegetation mortality. Maintenance shall occur in accordance with the approved plans. Chemical control, only if approved by City staff, shall be applied by a licensed applicator following all label instructions.

Duration and Extent

In order to achieve performance standards, the permittee shall have the mitigation area maintained for the duration of the five-year monitoring period. Maintenance will include: watering, weeding around the base of installed plants, pruning, replacement, re-staking, removal of all classes of noxious weeds (see Washington State Noxious Weeds List, WAC 16-750-005) as well as Himalayan blackberry, and any other measures needed to ensure plant survival. The landscape designer and/or wetland professional shall direct all maintenance.

Survival

The permittee shall be responsible for the health of 100% of all newly installed plants for *one growing season* after installation has been accepted by the City of Issaquah. A growing season for these purposes is defined as occurring from spring to spring (March 15 to March 15 of the following year). For fall installation (often required), the growing season will begin the following spring. The permittee shall replace any plants that are: failing, weak, defective in manner of growth, or dead during this growing season, as directed by the landscape designer, wetland professional, and/or City of Issaquah staff.

Installation Timing for Replacement Plants

Replacement plants shall be installed between September 15 and January 15, unless otherwise determined by the landscape designer, wetland professional, and/or City of Issaquah staff.

Standards for Replacement Plants

Replacement plants shall meet the same standards for size and type as those specified for the original installation, unless otherwise directed by the landscape designer, wetland professional, and/or City of Issaquah staff.

Replanting

Plants that have settled in their planting pits too deep, too shallow, loose, or crooked shall be replanted as directed by the landscape designer, wetland professional, and/or City of Issaquah staff.

Herbicides/Pesticides

Chemical controls shall not be used in the mitigation area, sensitive areas, or their buffers. However, limited use of herbicides may be approved depending on site-specific conditions, only if approved by City of Issaquah staff.

Irrigation/Watering

Water should be provided during the dry season (July 1 through October 15) for the first two years after installation to ensure plant survival and establishment. A temporary above ground irrigation system should be installed to provide water. Water should be applied at a rate of 1" of water twice per week for year one and 1" per week during year two. If the mitigation plantings meet 80 percent survival at the end of year two, the system may be removed.

General

The permittee shall include in general maintenance activities the replacement of any vandalized or damaged signs, habitat features, fences, or other structural components of this mitigation site.

10.4 CONTINGENCY PLAN

If 20% of the plants are severely stressed during any of the inspections, or it appears 20% may not survive, additional plantings of the same species may be added to the planting area. Elements of a contingency plan may include, but will not be limited to: more aggressive weed control, pest control, mulching, replanting with larger plant material, species substitution, fertilization, soil amendments, and/or irrigation.

10.5 PROJECT NOTES

Pre-Construction Meeting

Mitigation projects are typically more complex to install than to describe in plans. Careful monitoring by a wetland professional for all portions of this project is strongly recommended. Construction timing and sequencing is important to the success of this type of project. There will be a pre-construction meeting on this site between the Permittee, the consulting wetland professional, and laborers. The objective will be to verify the location of erosion control facilities, verify the location of mitigation areas, and to discuss project sequencing.

Inspections

A wetland professional shall be contracted to periodically inspect the mitigation installation described in this plan. Minor adjustments to the original design may be necessary prior to and

during construction due to unusual or hidden site conditions. A City of Issaquah representative and/or the consulting professional will make these decisions during construction.

10.6 PLANTING NOTES

Plant in the early spring or late fall and obtain all plants from a reputable nursery. Care and handling of all plant materials is extremely important to the overall success of the project. The origin of all plant materials specified in this plan shall be native plants, nursery grown in the Puget Sound region of Washington. Some limited species substitution may be allowed, only with the agreement of the landscape designer, wetland professional, and/or City staff.

Pre-Planting Meeting

Prior to control of invasive species or installation of mitigation plantings, a site meeting between the contracted landscaper and the consulting wetland professional shall occur to resolve any questions that may arise. During this meeting a discussion regarding plant spacing and locations of plant species including wetland versus buffer species shall occur between the landscape contractor and the consulting wetland professional.

Handling

Plants shall be handled so as to avoid all damage, including: breaking, bruising, root damage, sunburn, drying, freezing or other injury. Plants must be covered during transport. Plants shall not be bound with wire or rope in a manner that could damage branches. Protect plant roots with shade and wet soil in the time period between delivery and installation. Do not lift container stock by trunks, stems, or tops. Do not remove from containers until ready to plant. Water all plants as necessary to keep moisture levels appropriate to the species horticultural requirements. Plants shall not be allowed to dry out. All plants shall be watered thoroughly immediately upon installation. Soak all containerized plants thoroughly prior to installation. Bare root plants are subject to the following special requirements, and shall not be used unless planted between November 1 and March 1, and only with the permission of the landscape designer, wetland professional, and City staff. Bare root plants must have enough fibrous root to ensure plant survival. Roots must be covered at all times with: mud and/or wet straw, moss, or other suitable packing material until time of installation. Plants whose roots have dried out from exposure will not be accepted at installation inspection.

Storage

Plants stored by the Permittee for longer than one month prior to planting shall be planted in nursery rows and treated in a manner suitable to those species' horticultural requirements. Plants must be re-inspected by the wetland professional and/or landscape designer prior to installation.

Damaged plants

Damaged, dried out, or otherwise mishandled plants will be rejected at installation inspection. All rejected plants shall be immediately removed from the site.

Plant Names

Plant names shall comply with those generally accepted in the native plant nursery trade. Any question regarding plant species or variety shall be referred to the landscape designer, wetland professional, or City staff. All plant materials shall be true to species and variety and legibly tagged.

Quality and condition

Plants shall be normal in pattern of growth, healthy, well-branched, vigorous, with well-developed root systems, and free of pests and diseases. Damaged, diseased, pest-infested, scraped, bruised, dried out, burned, broken, or defective plants will be rejected. Plants with pruning wounds over 1-inch in diameter will be rejected.

Roots

All plants shall be balled and burlapped (B &B) or containerized, unless explicitly authorized by the landscape designer and/or wetland professional. Rootbound plants or B&B plants with damaged, cracked, or loose rootballs (major damage) will be rejected. Immediately before installation, plants with minor root damage (some broken and/or twisted roots) must be root-pruned. Matted or circling roots of containerized plantings must be pruned or straightened and the sides of the root ball must be roughened from top to bottom to a depth of approximately half an inch in two to four places. Bare root plantings of woody material are allowed only with permission from the landscape designer, wetland professional and/or City staff.

Sizes

Plant sizes shall be the size indicated in the plant schedule in approved plans. Larger stock may be acceptable provided that it has not been cut back to the size specified, and that the root ball is proportionate to the size of the plant. Smaller stock may be acceptable, and preferable under some circumstances, based on site-specific conditions. Measurements, caliper, branching, and balling and burlapping shall conform to the American Standard of Nursery Stock by the American Association of Nurserymen (latest edition).

Form

Evergreen trees shall have single trunks and symmetrical, well-developed form. Deciduous trees shall be single trunked unless specified as multi-stem in the plant schedule. Shrubs shall have multiple stems and be well-branched.

Timing of Planting

Unless otherwise approved by City staff, all planting shall occur between November 1 and March 1. Overall, the earlier plants go into the ground during the dormant period, the more time they have to adapt to the site and extend their root systems before the water demands of spring and summer.

Weeding

Existing and exotic vegetation in the mitigation areas will be hand-weeded from around all newly installed plants at the time of installation and on a routine basis throughout the monitoring period. No chemical control of vegetation on any portion of the site is recommended.

Site conditions

The contractor shall immediately notify the landscape designer and/or wetland professional of drainage or soil conditions likely to be detrimental to the growth or survival of plants. Planting operations shall not be conducted under the following conditions: freezing weather, when the ground is frozen, excessively wet weather, excessively windy weather, or in excessive heat.

Planting Pits

Planting pits shall be circular or square with vertical sides, and shall be 6" deeper and 12" larger in diameter than the root ball of the plant. Break up the sides of the pit in compacted soils. Set plants upright in pits. Burlap shall be removed from the planting pit. Backfill shall be worked back into holes such that air pockets are removed without adversely compacting down soils.

Fertilizer

Slow release fertilizer may be used if pre-approved by the City of Issaquah staff. Fertilizers shall be applied only at the base of plantings underneath the required covering of mulch (that does not contact stems of the plants). No soil amendment or fertilizers will be placed in planting holes.

Staking

Most shrubs and many trees DO NOT require any staking. If the plant can stand alone without staking in a moderate wind, do not use a stake. If the plant needs support, then strapping or webbing should be used as low as possible on the trunk to loosely brace the tree with two stakes. Do not brace the tree tightly or too high on the trunk. If the tree is unable to sway, it will further lose the ability to support itself. Do not use wire in a rubber hose for strapping as it exerts too much pressure on the bark. As soon as supporting the plant becomes unnecessary, remove the stakes. All stakes must be removed within two (2) years of installation.

Plant Location

Colored surveyors' ribbon or other appropriate marking shall be attached to the installed plants to assist in locating the plants while removing the competing non-native vegetation and during the monitoring period.

Arrangement and Spacing

The plants shall be arranged in a pattern with the appropriate numbers, sizes, species, and distribution that are required in accordance with the approved plans. The actual placement of individual plants shall mimic natural, asymmetric vegetation patterns found on similar undisturbed sites in the area. Spacing of the plantings may be adjusted to maintain existing vegetation with the agreement of the landscape designer, wetland professional, and/or City staff.

Inspection(s)

A wetland professional shall be present on site to inspect the plants prior to planting. Minor adjustments to the original design may be required prior to and during construction.

Woodchip Mulch

After buffer enhancement plant installation, a 36" circle of no less than 2 to 4 inches of organic/untreated woodchips shall be placed around the base of each plant. Woodchips shall be kept well away (at least 2 inches) from the trunks and stems of woody plants.

11.0 FUTURE TRAIL

Per the original Silverado Development Agreement, an easement for a pedestrian trail will be dedicated as part of the proposed development, to potentially provide future trail connections to the larger Squak Mountain trail system.

Many potential trail locations would be located within wetland and stream buffer, which is permissible by IMC 18.10.610(B)(5) and 18.10.775(C), so long as, *“a critical areas study per IMC 18.10.410 documents no loss of buffer functions and values. Additional buffer width equal to the width of the trail tread and the cleared trail shoulders shall be required, except where existing development prevents adding buffer width. In this case, other mitigating measures shall be required to ensure no loss of buffer functions and values.”*

WRI concludes that designation of additional buffer east of Tibbetts Creek would be appropriate mitigation for a future trail within the buffers of on-site critical areas. When considering trail design, WRI recommends that the trail should be located to avoid impacts to trees.

12.0 PERFORMANCE BOND

According to IMC 18.10.810(A), *“...The applicant may post a performance bond equal to one hundred fifty (150) percent of the total cost of the mitigation project to complete, or other security instrument which guarantees that all required mitigation measures will be completed no later than the time established by the City in accordance with this chapter.”*

In addition, according to IMC 18.10.810(B), *“The City shall require the applicant whose development proposal is subject to a mitigation plan to post a maintenance/monitoring bond equal to fifty (50) percent of the estimated maintenance and monitoring cost, or other security instrument in an amount determined sufficient to guarantee satisfactory workmanship, materials, and performance of structures and improvements allowed or required by this chapter for a period of five (5) years.”*

A King County Bond Quantity Worksheet has been completed for the proposed project, and is included in Appendix D. A summary of this worksheet is included below (this does not represent a bid to install):

Plant Materials	\$471.50
Installation Costs	\$386.00
Erosion Control	\$3,923.70
General Items	\$29,121.68
Mobilization & Contingency	\$13,561.15
Maintenance (5 years)	\$1,031.40
Monitoring (5 years)	\$4,536.00
Total Estimated Cost	\$53,031.43

Total x 150%

\$79,547.145

13.0 USE OF THIS REPORT

This Critical Area Study is supplied to Steve Burnstead Construction, LLC as a means of determining on-site wetland and stream conditions, as required by Snohomish County during the permitting process. This report is based largely on readily observable conditions and, to a lesser extent, on readily ascertainable conditions. No attempt has been made to determine hidden or concealed conditions. The laws applicable to wetlands are subject to varying interpretations and may be changed at any time by the courts or legislative bodies. This report is intended to provide information deemed relevant in the applicant's attempt to comply with the laws now in effect.

The work for this report has conformed to the standard of care employed by wetland ecologists. No other representation or warranty is made concerning the work or this report, and any implied representation or warranty is disclaimed.

Wetland Resources, Inc.



Tess Amen
Associate Ecologist



Meryl Kamowski
Senior Ecologist

15.0 REFERENCES

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APPENDIX A

WETLAND DETERMINATION DATA FORMS

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WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 7932 Renton-Issaquah Road City/County: Issaquah/King Sampling Date: 11/19/2014
 Applicant/Owner: Silverado Care State: WA Sampling Point: S4
 Investigator(s): MK and SB Section, Township, Range: S29, T24, R06E
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): _____ Slope (%): ~1
 Subregion (LRR): LRR-A Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Everett Gravelly Sandy Loam 5-15 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
		_____ = Total Cover		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = 0 FACW species _____ x 2 = 0 FAC species _____ x 3 = 0 FACU species _____ x 4 = 0 UPL species _____ x 5 = 0 Column Totals: 0 (A) 0 (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: 15x15)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
		_____ = Total Cover		
Herb Stratum (Plot size: 15x15)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Agrostis sp.</u>	85	Y	_____	
2. <u>Phalaris arundinacea</u>	25	Y	FAC	
3. <u>Ranunculus repens</u>	5	Y	FAC	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
		115 = Total Cover		
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input type="checkbox"/>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
		_____ = Total Cover		
% Bare Ground in Herb Stratum _____				
Remarks:				
Sample point is in pasture/lawn area. There were no inflorescence for a definite identification.				

SOIL

Sampling Point: S4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-16	10YR 2/1	95	7.5YR 4/6	5	C	M	sa lo	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
--	---	--

Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
--	---

Remarks:
minor amount of redoximorphic features at 15" in depth

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply)			Secondary Indicators (2 or more required)		
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A) <input type="checkbox"/> Frost-Heave Hummocks (D7)			

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 5 (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 7932 Renton-Issaquah Road City/County: Issaquah/King Sampling Date: 11/19/2014
 Applicant/Owner: Silverado Care State: WA Sampling Point: S2
 Investigator(s): MK and SB Section, Township, Range: S29, T24, R06E
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): _____ Slope (%): ~1
 Subregion (LRR): LRR-A Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Everett Gravelly Sandy Loam 5-15 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = 0 FACW species _____ x 2 = 0 FAC species _____ x 3 = 0 FACU species _____ x 4 = 0 UPL species _____ x 5 = 0 Column Totals: 0 (A) 0 (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
Herb Stratum (Plot size: _____)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Agrostis sp.</u>	90	Y	_____	
2. <u>Ranunculus repens</u>	10	N	FAC	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input type="checkbox"/>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
% Bare Ground in Herb Stratum _____ = Total Cover				
Remarks:				
Sample point is in a pasture/lawn area				

SOIL

Sampling Point: S2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-12	10YR 2/2	100					sa lo	
12-18	2.5Y 4/3	95	7.5YR 4/6					

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- | | |
|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- | | |
|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | |

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? Yes ☐ No ☒ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 7932 Renton-Issaquah Road City/County: Issaquah/King Sampling Date: 11/19/2014
 Applicant/Owner: Silverado Care State: WA Sampling Point: S3
 Investigator(s): MK and SV Section, Township, Range: S29, T24, R06E
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): _____ Slope (%): ~1
 Subregion (LRR): LRR-A Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Everett Gravelly Sandy Loam 5-15 percent slopes NWI classification: PFOC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>83</u> (A/B)
1. <u>Alnus rubra</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC species _____ x 3 = <u>0</u> FACU species _____ x 4 = <u>0</u> UPL species _____ x 5 = <u>0</u> Column Totals: <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = _____
<u>15</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: 15x15)				
1. <u>Rubus spectabilis</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	
2. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>15</u> = Total Cover				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Herb Stratum (Plot size: 15x15)				
1. <u>Agrostis sp.</u>	<u>50</u>	<u>Y</u>	_____	
2. <u>Athyrium filix-femina</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Ranunculus repens</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
4. <u>Lotus corniculatus</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
<u>90</u> = Total Cover				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
% Bare Ground in Herb Stratum _____				
Remarks:				
Sample point vegetation plot includes pasture/lawn area and the area with native trees/shrubs. There were no inflorescence for a definite identification.				

SOIL

Sampling Point: S3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-12	10YR 2/2	100					sa lo	
12-18	2.5Y 4/3	95	7.5YR 4/6					

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 5 (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 7932 Renton-Issaquah Road City/County: Issaquah/King Sampling Date: 11/19/2014
 Applicant/Owner: Silverado Care State: WA Sampling Point: S4
 Investigator(s): MK and SB Section, Township, Range: S29, T24, R06E
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): _____ Slope (%): ~1
 Subregion (LRR): LRR-A Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Everett Gravelly Sandy Loam 5-15 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
		_____ = Total Cover		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = 0 FACW species _____ x 2 = 0 FAC species _____ x 3 = 0 FACU species _____ x 4 = 0 UPL species _____ x 5 = 0 Column Totals: 0 (A) 0 (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: 15x15)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
5. _____	_____	_____	_____	
Herb Stratum (Plot size: 15x15)				
1. <u>Agrostis sp.</u>	90	Y	_____	
2. <u>Ranunculus repens</u>	10	Y	FAC	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input type="checkbox"/>
11. _____	_____	_____	_____	
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				
Sample point is in pasture/lawn area. There were no inflorescence for a definite identification.				

SOIL

Sampling Point: S4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-16	10YR 3/3	100					sa lo	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
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³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Remarks:
minor amount of redoximorphic features at 15" in depth

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A) <input type="checkbox"/> Frost-Heave Hummocks (D7)	

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 7932 Renton-Issaquah Road City/County: Issaquah/King Sampling Date: 11/19/2014
 Applicant/Owner: Silverado Care State: WA Sampling Point: S5
 Investigator(s): MK and SB Section, Township, Range: S29, T24, R06E
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): _____ Slope (%): ~1
 Subregion (LRR): LRR-A Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Mixed Alluvial Land NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
		_____ = Total Cover		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = 0 FACW species _____ x 2 = 0 FAC species _____ x 3 = 0 FACU species _____ x 4 = 0 UPL species _____ x 5 = 0 Column Totals: 0 (A) 0 (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: 15x15)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
5. _____	_____	_____	_____	
Herb Stratum (Plot size: 15x15)				
1. <u>Agrostis sp.</u>	70	Y	_____	
2. <u>Poa sp.</u>	30	Y	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input type="checkbox"/>
11. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
_____ = Total Cover				
Remarks:				

Sample point is in pasture/lawn area. There were no inflorescence for a definite identification.

SOIL

Sampling Point: S5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-12	10YR 3/3	100					sa lo	
12-16	10YR 5/2	97	10YR 4/6	3	C	M	sa lo	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
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Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Remarks:
minor amount of redoximorphic features at 15" in depth

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) <input type="checkbox"/> Other (Explain in Remarks)	Secondary Indicators (2 or more required) <input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A) <input type="checkbox"/> Frost-Heave Hummocks (D7)

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 7932 Renton-Issaquah Road City/County: Issaquah/King Sampling Date: 11/19/2014
 Applicant/Owner: Silverado Care State: WA Sampling Point: S6
 Investigator(s): MK and SB Section, Township, Range: S29, T24, R06E
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): LRR-A Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Mixed Alluvial Land NWI classification: PFOC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80</u> (A/B)
1. <u>Alnus rubra</u>	<u>35</u>	<u>Y</u>	<u>FAC</u>	
2. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC species _____ x 3 = <u>0</u> FACU species _____ x 4 = <u>0</u> UPL species _____ x 5 = <u>0</u> Column Totals: <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = _____
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Sapling/Shrub Stratum (Plot size: 15x15) 1. <u>Rubus spectabilis</u> <u>25</u> <u>Y</u> <u>FAC</u> 2. <u>Rubus armeniacus</u> <u>10</u> <u>N</u> <u>FACU</u> 3. _____ 4. _____ 5. _____ <u>35</u> = Total Cover				Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Herb Stratum (Plot size: 15x15) 1. <u>Phalaris arundinacea</u> <u>20</u> <u>Y</u> <u>FACW</u> 2. <u>Equisetum telmateia</u> <u>15</u> <u>Y</u> <u>FACW</u> 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____ <u>35</u> = Total Cover				
Woody Vine Stratum (Plot size: _____) 1. _____ 2. _____ _____ = Total Cover % Bare Ground in Herb Stratum _____ Remarks:				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

SOIL

Sampling Point: S6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-6	10YR 2/2	100					sa lo	
6-16	10YR 2/2	95	10YR 3/6	5	C	M	sa cl lo	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks:
minor amount of redoximorphic features at 15" in depth

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Dry-Season Water Table (C2)
	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Geomorphic Position (D2)
	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> FAC-Neutral Test (D5)
	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
	<input type="checkbox"/> Frost-Heave Hummocks (D7)

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): 11 (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: 7932 Renton-Issaquah Road City/County: Issaquah/King Sampling Date: 11/19/2014
 Applicant/Owner: Silverado Care State: WA Sampling Point: S7
 Investigator(s): MK and SB Section, Township, Range: S29, T24, R06E
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): LRR-A Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Mixed Alluvial Land NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 15x15)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>83</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
Sapling/Shrub Stratum (Plot size: 15x15)		<u>35</u>	= Total Cover	
1. <u>Rubus laciniatus</u>	<u>50</u>	<u>Y</u>	<u>FAC</u>	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC species _____ x 3 = <u>0</u> FACU species _____ x 4 = <u>0</u> UPL species _____ x 5 = <u>0</u> Column Totals: <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = _____
2. <u>Corylus cornuta</u>	<u>25</u>	<u>Y</u>	<u>FACU</u>	
3. <u>Ilex aquifolium</u>	<u>15</u>	<u>Y</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Herb Stratum (Plot size: 15x15)		<u>90</u>	= Total Cover	
1. <u>Ranunculus repens</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Equisetum telmateia</u>	<u>15</u>	<u>Y</u>	<u>FACW</u>	
3. <u>Phalaris arundinacea</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
Woody Vine Stratum (Plot size: _____)		<u>45</u>	= Total Cover	
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____	_____	_____	_____	
% Bare Ground in Herb Stratum _____		_____	= Total Cover	
Remarks:				

SOIL

Sampling Point: S7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-12	10YR 3/3	100					sa lo	
12-16	10YR 3/3	97	10YR 3/6	3	C	M	sa cl lo	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- | | |
|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- | | |
|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | |

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? Yes ☐ No ☒ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Silverado - Renton-Issaquah Road SE City/County: Issaquah/King County Sampling Date: 6/14/2017
 Applicant/Owner: Steve Burnstead Construction, LLC State: WA Sampling Point: S8
 Investigator(s): Meryl Kamowski, Tess Amen Section, Township, Range: S29-T24N-R06E-WM
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): None
 Subregion (LRR): LRR-A Lat: 47.531238 Long: -122.059902 Datum: NAD83
 Soil Map Unit Name: Mixed Alluvial Land NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks: Dense equisetum hyemale area adjacent to Tibbetts Creek. The period prior to the site visit (March-May) was wetter than normal.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5m ²)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75</u> (A/B)
1. <u>Alnus rubra</u>	<u>80</u>	<u>Y</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>80</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: 3m ²)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC species _____ x 3 = <u>0</u> FACU species _____ x 4 = <u>0</u> UPL species _____ x 5 = <u>0</u> Column Totals: <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = _____
1. <u>Rubus armeniacus</u>	<u>50</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Rubus spectabilis</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>65</u> = Total Cover				
Herb Stratum (Plot size: 1m ²)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Equisetum hyemale</u>	<u>80</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Polystichum munitum</u>	<u>15</u>	<u>N</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>95</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>5</u>				
Remarks:				

SOIL

Sampling Point: S8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-6	10YR 3/2	100					Silty Loam	
6-16	10YR 3/4	100					Sandy Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
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³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A) <input type="checkbox"/> Frost-Heave Hummocks (D7)	

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Silverado - Renton-Issaquah Road SE City/County: Issaquah/King County Sampling Date: 6/14/2017
 Applicant/Owner: Steve Burnstead Construction, LLC State: WA Sampling Point: S9
 Investigator(s): Meryl Kamowski, Tess Amen Section, Township, Range: S29-T24N-R06E-WM
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): None
 Subregion (LRR): LRR-A Lat: 47.531238 Long: -122.059902 Datum: NAD83
 Soil Map Unit Name: Mixed Alluvial Land NWI classification: PFOC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks: In Wetland D by WRD1. The period prior to the site visit (March-May 2017) was wetter than normal.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5m ²)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0 = Total Cover				
Sapling/Shrub Stratum (Plot size: 3m²)				
1. <u>Rubus armeniacus</u>	80	Y	FAC	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = 0 FACW species <u>25</u> x 2 = 50 FAC species <u>80</u> x 3 = 240 FACU species <u>15</u> x 4 = 60 UPL species _____ x 5 = 0 Column Totals: <u>120</u> (A) <u>350</u> (B) Prevalence Index = B/A = <u>2.9</u>
2. <u>Salix lasiandra</u>	25	Y	FACW	
3. <u>Sambucus racemosa</u>	15	N	FACU	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
120 = Total Cover				
Herb Stratum (Plot size: 1m²)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
0 = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
2. _____	_____	_____	_____	
0 = Total Cover				
% Bare Ground in Herb Stratum <u>100</u>				
Remarks:				

SOIL

Sampling Point: S9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-6	10YR 3/2	95	7.5YR 4/4	5	C	M	Sandy Clay Loam	
6-16	2.5Y 5/2	75	7.5YR 5/6	25	C	M	Sandy Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- | | |
|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input checked="" type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- | | |
|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | |

Secondary Indicators (2 or more required)

- ☒ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? Yes ☒ No ☐ Depth (inches): 12"
(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Silverado - Renton-Issaquah Road SE City/County: Issaquah/King County Sampling Date: 6/14/2017
 Applicant/Owner: Steve Burnstead Construction, LLC State: WA Sampling Point: S10
 Investigator(s): Meryl Kamowski, Tess Amen Section, Township, Range: S29-T24N-R06E-WM
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): ~6%
 Subregion (LRR): LRR-A Lat: 47.531238 Long: -122.059902 Datum: NAD83
 Soil Map Unit Name: Mixed Alluvial Land NWI classification: PFOC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Remarks: In Wetland E. The period prior to the site visit (March-May) was wetter than normal.			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5m ²)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80</u> (A/B)
1. <u>Thuja plicata</u>	<u>60</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Alnus rubra</u>	<u>35</u>	<u>Y</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC species _____ x 3 = <u>0</u> FACU species _____ x 4 = <u>0</u> UPL species _____ x 5 = <u>0</u> Column Totals: <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = _____
<u>95</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: 3m ²)				
1. <u>Rubus spectabilis</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	
2. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>30</u> = Total Cover				
Herb Stratum (Plot size: 1m ²)				
1. <u>Tolmiea menziesii</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Polystichum munitum</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>	
3. <u>Athyrium filix-femina</u>	<u>Trace</u>	<u>N</u>	<u>FAC</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>20</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>80</u>				
Remarks:				

SOIL

Sampling Point: S10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-18	10YR 2/1	100					Sandy Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)			Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):		Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Type: _____	Depth (inches): _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
Field Observations:			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>Surface</u>	
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>Surface</u>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Silverado - Renton-Issaquah Road SE City/County: Issaquah/King County Sampling Date: 6/14/2017
 Applicant/Owner: Steve Burnstead Construction, LLC State: WA Sampling Point: S11
 Investigator(s): Meryl Kamowski, Tess Amen Section, Township, Range: S29-T24N-R06E-WM
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): ~6%
 Subregion (LRR): LRR-A Lat: 47.531238 Long: -122.059902 Datum: NAD83
 Soil Map Unit Name: Mixed Alluvial Land NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input type="checkbox"/>	
Remarks: Wetland E Out. The period prior to the site visit (March-May) was wetter than normal.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5m)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>43%</u> (A/B)
1. <u>Thuja plicata</u>	<u>40</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Tsuga heterophylla</u>	<u>15</u>	<u>Y</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC species <u>50</u> x 3 = <u>150</u> FACU species <u>35</u> x 4 = <u>140</u> UPL species <u>5</u> x 5 = <u>25</u> Column Totals: <u>90</u> (A) <u>315</u> (B) Prevalence Index = B/A = <u>3.5</u>
<u>55</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: 3m)				
1. <u>Vaccinium parvifolium</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Rubus spectabilis</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>10</u> = Total Cover				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Herb Stratum (Plot size: 1m)				
1. <u>Polystichum munitum</u>	<u>15</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Achlys triphylla</u>	<u>5</u>	<u>Y</u>	<u>UPL</u>	
3. <u>Athyrium filix-femina</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>	Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
<u>25</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>75</u>				
Remarks:				

SOIL

Sampling Point: S11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-5	10YR 2/2	100					Sandy Clay Loam	
5-16	10YR 3/3	100					Sandy Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
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³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Remarks: _____

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A) <input type="checkbox"/> Frost-Heave Hummocks (D7)	

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: _____

Remarks: _____

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Silverado - Renton-Issaquah Road SE City/County: Issaquah/King County Sampling Date: 6/14/2017
 Applicant/Owner: Silverado Care State: WA Sampling Point: S12
 Investigator(s): Meryl Kamowski, Tess Amen Section, Township, Range: S29-T24N-R06E-WM
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): None
 Subregion (LRR): LRR-A Lat: 47.531238 Long: -122.059902 Datum: NAD83
 Soil Map Unit Name: Mixed Alluvial Land NWI classification: PFOC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Remarks: In Wetland F. The period prior to the site visit (March-May) was wetter than normal.			

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5m ²)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. <u>Alnus rubra</u>	<u>40</u>	<u>Y</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = <u>0</u> FACW species _____ x 2 = <u>0</u> FAC species _____ x 3 = <u>0</u> FACU species _____ x 4 = <u>0</u> UPL species _____ x 5 = <u>0</u> Column Totals: <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = _____
<u>40</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: 3m ²)				
1. <u>Rubus spectabilis</u>	<u>40</u>	<u>Y</u>	<u>FAC</u>	
2. _____	_____	_____	_____	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>40</u> = Total Cover				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Herb Stratum (Plot size: 1m ²)				
1. <u>Equisetum hyemale</u>	<u>60</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Phalaris arundinacea</u>	<u>40</u>	<u>Y</u>	<u>FACW</u>	
3. <u>Tolmiea menziesii</u>	<u>Trace</u>	<u>N</u>	<u>FAC</u>	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<u>0</u> = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				
Remarks:				

SOIL

Sampling Point: S12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-16	10YR 3/1	95	7.5YR 3/4	5	C	M	Sa Cl Lo	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- | | |
|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils³:

- ☐ 2 cm Muck (A10)
☐ Red Parent Material (TF2)
☐ Very Shallow Dark Surface (TF12)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- | | |
|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) |
| <input checked="" type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Salt Crust (B11) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | |

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Geomorphic Position (D2)
☐ Shallow Aquitard (D3)
☐ FAC-Neutral Test (D5)
☐ Raised Ant Mounds (D6) (**LRR A**)
☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____
 Water Table Present? Yes ☒ No ☐ Depth (inches): Surface
 Saturation Present? Yes ☒ No ☐ Depth (inches): Surface
 (includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

APPENDIX B

WETLAND RATING FORMS

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Wetland name or number Wet A

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Silverado - Wetland A Date of site visit: 11/19/14

Rated by MK Trained by Ecology? Yes ☒ No ☐ Date of training 04/13

SEC: 29 TWSHP: 24 RANGE: 06 Is S/T/R in Appendix D? Yes ☐ No ☒

Map of wetland unit: Figure _____ Estimated size 1,200 square feet

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I ___ II ___ III ___ IV ☒

Category I = Score ≥ 70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions

10

Score for Hydrologic Functions

10

Score for Habitat Functions

9

TOTAL score for Functions

29

Category based on SPECIAL CHARACTERISTICS of wetland

I ___ II ___ Does not Apply ☒

Final Category (choose the “highest” category from above)

IV

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		Depressional	
Natural Heritage Wetland		Riverine	
Bog		Lake-fringe	
Mature Forest		Slope	<input checked="" type="checkbox"/>
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above	<input checked="" type="checkbox"/>	Check if unit has multiple HGM classes present	<input type="checkbox"/>

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. <i>Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		✓
SP2. <i>Has the wetland unit been documented as habitat for any State listed Threatened or Endangered animal species?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		✓
SP3. <i>Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?</i>		✓
SP4. <i>Does the wetland unit have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		✓

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?

☒ NO – go to 2 ☐ YES – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? ☒ YES – **Freshwater Tidal Fringe** ☐ NO – **Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term “Estuarine” wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it.

Groundwater and surface water runoff are NOT sources of water to the unit.

☒ NO – go to 3 ☐ YES – The wetland class is **Flats**

If your wetland can be classified as a “Flats” wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

____ At least 30% of the open water area is deeper than 6.6 ft (2 m)?

☒ NO – go to 4 ☐ YES – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

☒ The wetland is on a slope (*slope can be very gradual*),

☒ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

☒ The water leaves the wetland **without being impounded**?

NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*

☐ NO - go to 5 ☒ YES – The wetland class is **Slope**

5. Does the entire wetland unit **meet all** of the following criteria?

_____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

_____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

☐ NO - go to 6 ☐ YES – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO – go to 7 ☐ YES – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO – go to 8 ☐ YES – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. **NOTE:** Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

<i>HGM Classes within the wetland unit being rated</i>		<i>HGM Class to Use in Rating</i>	
Slope + Riverine	<input type="checkbox"/>	Riverine	<input type="checkbox"/>
Slope + Depressional	<input type="checkbox"/>	Depressional	<input type="checkbox"/>
Slope + Lake-fringe	<input type="checkbox"/>	Lake-fringe	<input type="checkbox"/>
Depressional + Riverine along stream within boundary	<input type="checkbox"/>	Depressional	<input type="checkbox"/>
Depressional + Lake-fringe	<input type="checkbox"/>	Depressional	<input type="checkbox"/>
Salt Water Tidal Fringe and any other class of freshwater wetland	<input type="checkbox"/>	Treat as ESTUARINE under wetlands with special characteristics	<input type="checkbox"/>

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

S Slope Wetlands WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality		Points (only 1 score per box)
S	S 1. Does the wetland unit have the <u>potential</u> to improve water quality?	(see p.64)
S	S 1.1 Characteristics of average slope of unit: <input type="checkbox"/> Slope is 1% or less (<i>a 1% slope has a 1 foot vertical drop in elevation for every 100 ft horizontal distance</i>) points = 3 <input checked="" type="checkbox"/> Slope is 1% - 2% points = 2 <input type="checkbox"/> Slope is 2% - 5% points = 1 <input type="checkbox"/> Slope is greater than 5% points = 0	2
S	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (<i>use NRCS definitions</i>) <input type="checkbox"/> YES = 3 points <input checked="" type="checkbox"/> NO = 0 points	0
S	S 1.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches. <input type="checkbox"/> Dense, uncut, herbaceous vegetation > 90% of the wetland area points = 6 <input checked="" type="checkbox"/> Dense, uncut, herbaceous vegetation > 1/2 of area points = 3 <input type="checkbox"/> Dense, woody, vegetation > 1/2 of area points = 2 <input type="checkbox"/> Dense, uncut, herbaceous vegetation > 1/4 of area points = 1 <input type="checkbox"/> Does not meet any of the criteria above for vegetation points = 0 Aerial photo or map with vegetation polygons	Figure ____ 3
S	Total for S 1 Add the points in the boxes above	5
S	S 2. Does the wetland unit have the <u>opportunity</u> to improve water quality? Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity. <input type="checkbox"/> Grazing in the wetland or within 150ft <input type="checkbox"/> Untreated stormwater discharges to wetland <input type="checkbox"/> Tilled fields, logging, or orchards within 150 feet of wetland <input checked="" type="checkbox"/> Residential, urban areas, or golf courses are within 150 ft upslope of wetland <input type="checkbox"/> Other _____ <input checked="" type="checkbox"/> YES multiplier is 2 <input type="checkbox"/> NO multiplier is 1	(see p.67) multiplier 2
S	TOTAL - Water Quality Functions Multiply the score from S1 by S2 Add score to table on p. 1	10

Comments

S	Slope Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream erosion	Points (only 1 score per box)
	S 3. Does the wetland unit have the <u>potential</u> to reduce flooding and stream erosion?	<i>(see p.68)</i>
S	S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. <i>Choose the points appropriate for the description that best fit conditions in the wetland. (stems of plants should be thick enough (usually > 1/8in), or dense enough, to remain erect during surface flows)</i> <input type="checkbox"/> Dense, uncut, rigid vegetation covers > 90% of the area of the wetland. points = 6 <input checked="" type="checkbox"/> Dense, uncut, rigid vegetation > 1/2 area of wetland points = 3 <input type="checkbox"/> Dense, uncut, rigid vegetation > 1/4 area points = 1 <input type="checkbox"/> More than 1/4 of area is grazed, mowed, tilled or vegetation is not rigid points = 0	3
S	S 3.2 Characteristics of slope wetland that holds back small amounts of flood flows: The slope wetland has small surface depressions that can retain water over at least 10% of its area. <input checked="" type="checkbox"/> YES points = 2 <input type="checkbox"/> NO points = 0	2
S	<i>Add the points in the boxes above</i>	5
S	S 4. Does the wetland have the <u>opportunity</u> to reduce flooding and erosion? Is the wetland in a landscape position where the reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? <i>Note which of the following conditions apply.</i> <input checked="" type="checkbox"/> Wetland has surface runoff that drains to a river or stream that has flooding problems <input type="checkbox"/> Other _____ <i>(Answer NO if the major source of water is controlled by a reservoir (e.g. wetland is a seep that is on the downstream side of a dam))</i> <input checked="" type="checkbox"/> YES multiplier is 2 <input type="checkbox"/> NO multiplier is 1	<i>(see p. 70)</i> multiplier <u>2</u>
S	TOTAL - Hydrologic Functions Multiply the score from S 3 by S 4 <i>Add score to table on p. 1</i>	10

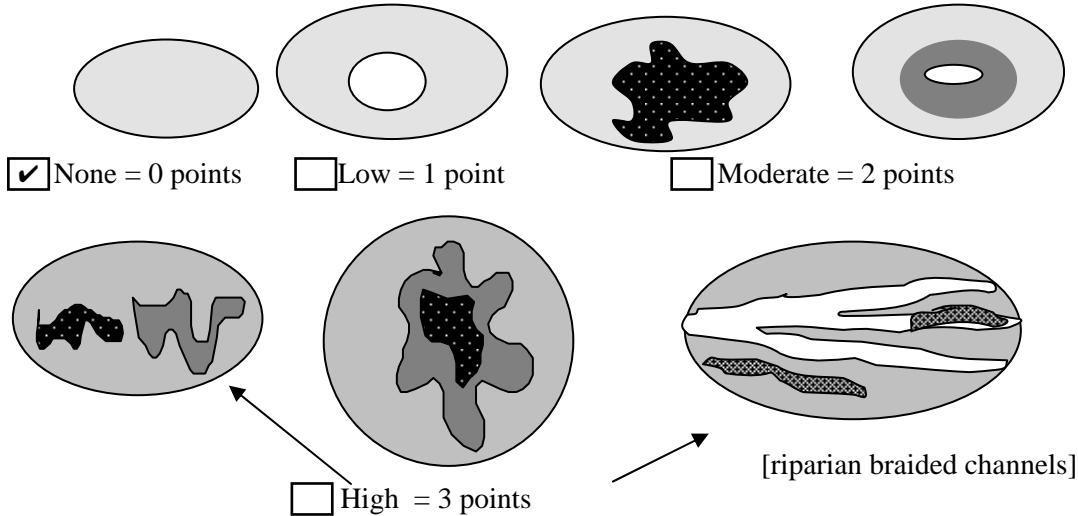
Comments

These questions apply to wetlands of all HGM classes.		Points (only 1 score per box)
HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat		
H 1. Does the wetland unit have the <u>potential</u> to provide habitat for many species?		
<p>H 1.1 Vegetation structure (see p. 72) Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.</p> <p> <input type="checkbox"/> Aquatic bed <input checked="" type="checkbox"/> Emergent plants <input type="checkbox"/> Scrub/shrub (areas where shrubs have >30% cover) <input type="checkbox"/> Forested (areas where trees have >30% cover) If the unit has a forested class check if: <input type="checkbox"/> The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon Add the number of vegetation structures that qualify. If you have: <input type="checkbox"/> 4 structures or more points = 4 <input type="checkbox"/> 3 structures points = 2 <input type="checkbox"/> 2 structures points = 1 <input checked="" type="checkbox"/> 1 structure points = 0 </p> <p>Map of Cowardin vegetation classes</p>		<p>Figure ____</p> <p>0</p>
<p>H 1.2. Hydroperiods (see p. 73) Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)</p> <p> <input type="checkbox"/> Permanently flooded or inundated <input type="checkbox"/> Seasonally flooded or inundated <input type="checkbox"/> Occasionally flooded or inundated <input checked="" type="checkbox"/> Saturated only <input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland <input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland <input type="checkbox"/> Lake-fringe wetland = 2 points <input type="checkbox"/> Freshwater tidal wetland = 2 points </p> <p> <input type="checkbox"/> 4 or more types present points = 3 <input type="checkbox"/> 3 types present points = 2 <input type="checkbox"/> 2 types present point = 1 <input checked="" type="checkbox"/> 1 type present points = 0 </p> <p>Map of hydroperiods</p>		<p>Figure ____</p> <p>0</p>
<p>H 1.3. Richness of Plant Species (see p. 75) Count the number of plant species in the wetland that cover at least 10 ft². (different patches of the same species can be combined to meet the size threshold) You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle If you counted: <input type="checkbox"/> > 19 species points = 2 <input checked="" type="checkbox"/> 5 - 19 species points = 1 <input type="checkbox"/> < 5 species points = 0 List species below if you want to:</p>		<p>1</p>

Total for page 1

H 1.4. Interspersion of habitats (see p. 76)

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.



NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

Figure

0

H 1.5. Special Habitat Features: (see p. 77)

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

- ☐ Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).
- ☐ Standing snags (diameter at the bottom > 4 inches) in the wetland
- ☐ Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)
- ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet turned grey/brown*)
- ☐ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. (*structures for egg-laying by amphibians*)
- ☐ Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

0

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

1

Comments

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
<p>H 2.1 Buffers (<i>see p. 80</i>) Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."</p> <p><input type="checkbox"/> 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) Points = 5</p> <p><input type="checkbox"/> 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. Points = 4</p> <p><input type="checkbox"/> 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. Points = 4</p> <p><input type="checkbox"/> 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . Points = 3</p> <p><input type="checkbox"/> 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. Points = 3</p> <p style="text-align: center;">If buffer does not meet any of the criteria above</p> <p><input type="checkbox"/> No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. Points = 2</p> <p><input checked="" type="checkbox"/> No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. Points = 2</p> <p><input type="checkbox"/> Heavy grazing in buffer. Points = 1</p> <p><input type="checkbox"/> Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) Points = 0.</p> <p><input type="checkbox"/> Buffer does not meet any of the criteria above. Points = 1</p> <p style="text-align: right;">Aerial photo showing buffers</p>	<p>Figure _____</p> <p style="text-align: center; font-size: 2em;">2</p>
<p>H 2.2 Corridors and Connections (<i>see p. 81</i>)</p> <p>H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (<i>dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor</i>).</p> <p><input type="checkbox"/> YES = 4 points (<i>go to H 2.3</i>) <input type="checkbox"/> NO = go to H 2.2.2</p> <p>H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? OR a Lake-fringe wetland, if it does not have an undisturbed corridor as in the question above?</p> <p><input type="checkbox"/> YES = 2 points (<i>go to H 2.3</i>) <input type="checkbox"/> NO = H 2.2.3</p> <p>H 2.2.3 Is the wetland:</p> <p><input type="checkbox"/> within 5 mi (8km) of a brackish or salt water estuary OR</p> <p><input type="checkbox"/> within 3 mi of a large field or pasture (>40 acres) OR</p> <p><input type="checkbox"/> within 1 mi of a lake greater than 20 acres?</p> <p><input type="checkbox"/> YES = 1 point <input checked="" type="checkbox"/> NO = 0 points</p>	<p style="text-align: center; font-size: 2em;">0</p>

Total for page 2

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report <http://wdfw.wa.gov/hab/phslist.htm>)

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

- ☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).
- ☐ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).
- ☐ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.
- ☐ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).
- ☒ **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).
- ☒ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A*).
- ☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.
- ☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☐ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.
- ☐ If wetland has **3 or more** priority habitats = **4 points**
- ☒ If wetland has **2** priority habitats = **3 points**
- ☐ If wetland has **1** priority habitat = **1 point** ☐ No habitats = 0 points
- Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)*

3

<p>H 2.4 Wetland Landscape (<i>choose the one description of the landscape around the wetland that best fits</i>) (<i>see p. 84</i>)</p> <p><input type="checkbox"/> There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5</p> <p><input checked="" type="checkbox"/> There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3</p> <p><input type="checkbox"/> There is at least 1 wetland within ½ mile. points = 2</p> <p><input type="checkbox"/> There are no wetlands within ½ mile. points = 0</p>	3
<p>H 2. TOTAL Score - opportunity for providing habitat <i>Add the scores from H2.1, H2.2, H2.3, H2.4</i></p>	8
<p>TOTAL for H 1 from page 14</p>	1
<p>Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1</p>	9

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

Wetland Type <i>Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.</i>	Category
SC 1.0 Estuarine wetlands (see p. 86) Does the wetland unit meet the following criteria for Estuarine wetlands? <input type="checkbox"/> The dominant water regime is tidal, <input type="checkbox"/> Vegetated, and <input type="checkbox"/> With a salinity greater than 0.5 ppt. <input type="checkbox"/> YES = Go to SC 1.1 NO <input checked="" type="checkbox"/> =Go to SC 2.0	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? <input type="checkbox"/> YES = Category I <input type="checkbox"/> NO go to SC 1.2	Cat. I <input type="checkbox"/>
SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? <input type="checkbox"/> YES = Category I <input type="checkbox"/> NO = Category II <input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native <i>Spartina</i> spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of <i>Spartina</i> would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of <i>Spartina</i> in determining the size threshold of 1 acre. <input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. <input type="checkbox"/> The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	<input type="checkbox"/> Cat. I <input type="checkbox"/> Cat. II <input type="checkbox"/> Dual rating I/II

<p>SC 2.0 Natural Heritage Wetlands (<i>see p. 87</i>)</p> <p>Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.</p> <p>SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? (<i>this question is used to screen out most sites before you need to contact WNHP/DNR</i>)</p> <p>S/T/R information from Appendix D <input checked="" type="checkbox"/> or accessed from WNHP/DNR web site <input type="checkbox"/></p> <p>YES <input type="checkbox"/> – contact WNHP/DNR (see p. 79) and go to SC 2.2 NO <input checked="" type="checkbox"/></p> <p>SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species?</p> <p><input type="checkbox"/> YES = Category I NO <input checked="" type="checkbox"/> not a Heritage Wetland</p>	<input type="checkbox"/> Cat. I
<p>SC 3.0 Bogs (<i>see p. 87</i>)</p> <p>Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below to identify if the wetland is a bog. If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p>1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)? Yes - go to Q. 3 <input type="checkbox"/> <input checked="" type="checkbox"/> No - go to Q. 2</p> <p>2. Does the unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond?</p> <p><input type="checkbox"/> Yes - go to Q. 3 <input checked="" type="checkbox"/> No - Is not a bog for purpose of rating</p> <p>3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the “bog” species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)?</p> <p><input type="checkbox"/> Yes – Is a bog for purpose of rating <input type="checkbox"/> No - go to Q. 4</p> <p>NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16” deep. If the pH is less than 5.0 and the “bog” plant species in Table 3 are present, the wetland is a bog.</p> <p>1. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann’s spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (> 30% coverage of the total shrub/herbaceous cover)?</p> <p>2. <input type="checkbox"/> YES = Category I No <input type="checkbox"/> Is not a bog for purpose of rating</p>	<input type="checkbox"/> Cat. I

<p>SC 4.0 Forested Wetlands (see p. 90) Does the wetland unit have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? <i>If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> Old-growth forests: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more.</p> <p>NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter.</p> <p><input type="checkbox"/> Mature forests: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have average diameters (dbh) exceeding 21 inches (53cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth.</p> <p><input type="checkbox"/> YES = Category I NO <input checked="" type="checkbox"/> not a forested wetland with special characteristics</p>	<p>Cat. I <input type="checkbox"/></p>
<p>SC 5.0 Wetlands in Coastal Lagoons (see p. 91) Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <p><input type="checkbox"/> The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks</p> <p><input type="checkbox"/> The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</p> <p><input type="checkbox"/> YES = Go to SC 5.1 NO <input checked="" type="checkbox"/> not a wetland in a coastal lagoon</p> <p>SC 5.1 Does the wetland meets all of the following three conditions?</p> <p><input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).</p> <p><input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.</p> <p><input type="checkbox"/> The wetland is larger than 1/10 acre (4350 square feet)</p> <p><input type="checkbox"/> YES = Category I <input type="checkbox"/> NO = Category II</p>	<p><input type="checkbox"/> Cat. I</p> <p><input type="checkbox"/> Cat. II</p>

SC 6.0 Interdunal Wetlands (*see p. 93*)

Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?

☐ YES - go to SC 6.1 NO ☒ not an interdunal wetland for rating

If you answer yes you will still need to rate the wetland based on its functions.

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula- lands west of SR 103

☐ Grayland-Westport- lands west of SR 105

☐ Ocean Shores-Copalis- lands west of SR 115 and SR 109

SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is once acre or larger?

☐ YES = Category II

☐ NO – go to SC 6.2

SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?

☐ YES = Category III

Cat. II ☐

Cat. III ☐

Category of wetland based on Special Characteristics

Choose the “highest” rating if wetland falls into several categories, and record on p. 1.

If you answered NO for all types enter “Not Applicable” on p.1

☐ Cat. I
☐ Cat. II
☐ Cat. III
☒ N/A

Wetland name or number WET B

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Silverado - Wetland B Date of site visit: 11/19/14

Rated by MK Trained by Ecology? Yes ☒ No ☐ Date of training 04/13

SEC: 29 TOWNSHIP: 24 RANGE: 06E Is S/T/R in Appendix D? Yes ☐ No ☒

Map of wetland unit: Figure _____ Estimated size ~1 acre

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I ___ II ___ III ☒ IV ___

Category I = Score ≥ 70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions

14

Score for Hydrologic Functions

10

Score for Habitat Functions

17

TOTAL score for Functions

41

Category based on SPECIAL CHARACTERISTICS of wetland

I ___ II ___ Does not Apply ___

Final Category (choose the “highest” category from above)

III

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		Depressional	<input checked="" type="checkbox"/>
Natural Heritage Wetland		Riverine	
Bog		Lake-fringe	
Mature Forest		Slope	
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above	<input checked="" type="checkbox"/>	Check if unit has multiple HGM classes present	<input checked="" type="checkbox"/>

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. <i>Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		✓
SP2. <i>Has the wetland unit been documented as habitat for any State listed Threatened or Endangered animal species?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		✓
SP3. <i>Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?</i>		✓
SP4. <i>Does the wetland unit have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		✓

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?

☒ NO – go to 2 ☐ YES – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? ☒ YES – **Freshwater Tidal Fringe** ☐ NO – **Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term “Estuarine” wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it.

Groundwater and surface water runoff are NOT sources of water to the unit.

☒ NO – go to 3 ☐ YES – The wetland class is **Flats**

If your wetland can be classified as a “Flats” wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

____ At least 30% of the open water area is deeper than 6.6 ft (2 m)?

☒ NO – go to 4 ☐ YES – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

☒ The wetland is on a slope (*slope can be very gradual*),

____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

____ The water leaves the wetland **without being impounded**?

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).

☒ NO - go to 5 ☐ YES – The wetland class is **Slope**

5. Does the entire wetland unit **meet all** of the following criteria?

_____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

_____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

☒ NO - go to 6 ☐ YES – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO – go to 7 ☒ YES – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO – go to 8 ☐ YES – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. **NOTE:** Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

<i>HGM Classes within the wetland unit being rated</i>		<i>HGM Class to Use in Rating</i>	
Slope + Riverine	<input type="checkbox"/>	Riverine	<input type="checkbox"/>
Slope + Depressional	<input type="checkbox"/>	Depressional	<input checked="" type="checkbox"/>
Slope + Lake-fringe	<input type="checkbox"/>	Lake-fringe	<input type="checkbox"/>
Depressional + Riverine along stream within boundary	<input type="checkbox"/>	Depressional	<input type="checkbox"/>
Depressional + Lake-fringe	<input type="checkbox"/>	Depressional	<input type="checkbox"/>
Salt Water Tidal Fringe and any other class of freshwater wetland	<input type="checkbox"/>	Treat as ESTUARINE under wetlands with special characteristics	<input type="checkbox"/>

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

D Depressional and Flats Wetlands		Points
WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality		(only 1 score per box)
D	D 1. Does the wetland unit have the <u>potential</u> to improve water quality?	(see p.38)
D	D 1.1 Characteristics of surface water flows out of the wetland: <input type="checkbox"/> Unit is a depression with no surface water leaving it (no outlet) points = 3 <input checked="" type="checkbox"/> Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 <input type="checkbox"/> Unit has an unconstricted, or slightly constricted, surface outlet (<i>permanently flowing</i>) points = 1 <input type="checkbox"/> Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1 <i>(If ditch is not permanently flowing treat unit as "intermittently flowing")</i> Provide photo or drawing	Figure ____ 2
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (<i>use NRCS definitions</i>) <input type="checkbox"/> YES points = 4 <input checked="" type="checkbox"/> NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) <input checked="" type="checkbox"/> Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 <input type="checkbox"/> Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 <input type="checkbox"/> Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	Figure ____ 5
D	D1.4 Characteristics of seasonal ponding or inundation. <i>This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.</i> <input type="checkbox"/> Area seasonally ponded is > 1/2 total area of wetland points = 4 <input type="checkbox"/> Area seasonally ponded is > 1/4 total area of wetland points = 2 <input checked="" type="checkbox"/> Area seasonally ponded is < 1/4 total area of wetland points = 0 Map of Hydroperiods	Figure ____ 0
D	Total for D 1 <i>Add the points in the boxes above</i>	7
D	D 2. Does the wetland unit have the <u>opportunity</u> to improve water quality? Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. <i>Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.</i> <input type="checkbox"/> Grazing in the wetland or within 150 ft <input type="checkbox"/> Untreated stormwater discharges to wetland <input type="checkbox"/> Tilled fields or orchards within 150 ft of wetland <input type="checkbox"/> A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging <input checked="" type="checkbox"/> Residential, urban areas, golf courses are within 150 ft of wetland <input type="checkbox"/> Wetland is fed by groundwater high in phosphorus or nitrogen <input type="checkbox"/> Other _____ <input checked="" type="checkbox"/> YES multiplier is 2 <input type="checkbox"/> NO multiplier is 1	(see p. 44) multiplier 2
D	TOTAL - Water Quality Functions Multiply the score from D1 by D2 <i>Add score to table on p. 1</i>	14

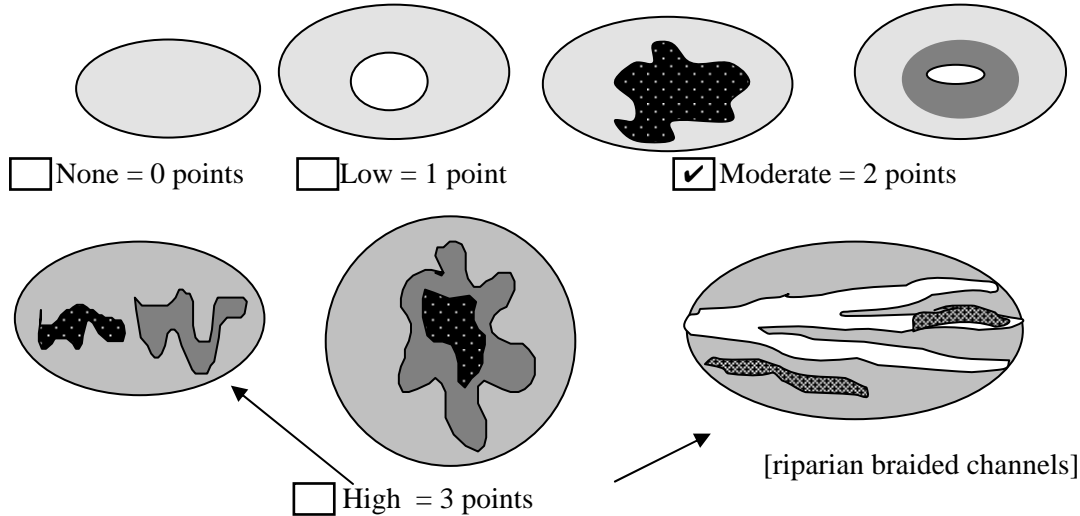
D Depressional and Flats Wetlands		Points (only 1 score per box)
HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation		
	D 3. Does the wetland unit have the <u>potential</u> to reduce flooding and erosion?	(see p.46)
D	D 3.1 Characteristics of surface water flows out of the wetland unit <input type="checkbox"/> Unit is a depression with no surface water leaving it (no outlet) points = 4 <input checked="" type="checkbox"/> Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 <input type="checkbox"/> Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1 <i>(If ditch is not permanently flowing treat unit as "intermittently flowing")</i> <input type="checkbox"/> Unit has an unconstricted, or slightly constricted, surface outlet (<i>permanently flowing</i>) points = 0	2
D	D 3.2 Depth of storage during wet periods <i>Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).</i> <input type="checkbox"/> Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 <input type="checkbox"/> The wetland is a "headwater" wetland points = 5 <input type="checkbox"/> Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 <input type="checkbox"/> Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 <input type="checkbox"/> Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 <input checked="" type="checkbox"/> Marks of ponding less than 0.5 ft points = 0	0
D	D 3.3 Contribution of wetland unit to storage in the watershed <i>Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.</i> <input type="checkbox"/> The area of the basin is less than 10 times the area of unit points = 5 <input checked="" type="checkbox"/> The area of the basin is 10 to 100 times the area of the unit points = 3 <input type="checkbox"/> The area of the basin is more than 100 times the area of the unit points = 0 <input type="checkbox"/> Entire unit is in the FLATS class points = 5	3
D	Total for D 3 <i>Add the points in the boxes above</i>	5
D	D 4. Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. <i>Note which of the following indicators of opportunity apply.</i> <input type="checkbox"/> Wetland is in a headwater of a river or stream that has flooding problems <input checked="" type="checkbox"/> Wetland drains to a river or stream that has flooding problems <input type="checkbox"/> Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems <input type="checkbox"/> Other _____ <input checked="" type="checkbox"/> YES multiplier is 2 <input type="checkbox"/> NO multiplier is 1	(see p. 49) multiplier 2
D	TOTAL - Hydrologic Functions Multiply the score from D 3 by D 4 <i>Add score to table on p. 1</i>	10

These questions apply to wetlands of all HGM classes.		Points (only 1 score per box)																								
HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat																										
H 1. Does the wetland unit have the <u>potential</u> to provide habitat for many species?																										
<p>H 1.1 Vegetation structure (see p. 72) Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.</p> <p> <input type="checkbox"/> Aquatic bed <input checked="" type="checkbox"/> Emergent plants <input type="checkbox"/> Scrub/shrub (areas where shrubs have >30% cover) <input checked="" type="checkbox"/> Forested (areas where trees have >30% cover) If the unit has a forested class check if: <input checked="" type="checkbox"/> The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon Add the number of vegetation structures that qualify. If you have:</p> <table border="0"> <tr> <td><input type="checkbox"/> 4 structures or more</td> <td>points = 4</td> </tr> <tr> <td><input checked="" type="checkbox"/> 3 structures</td> <td>points = 2</td> </tr> <tr> <td><input type="checkbox"/> 2 structures</td> <td>points = 1</td> </tr> <tr> <td><input type="checkbox"/> 1 structure</td> <td>points = 0</td> </tr> </table> <p>Map of Cowardin vegetation classes</p>		<input type="checkbox"/> 4 structures or more	points = 4	<input checked="" type="checkbox"/> 3 structures	points = 2	<input type="checkbox"/> 2 structures	points = 1	<input type="checkbox"/> 1 structure	points = 0	<p>Figure _____</p> <p style="text-align: center;">2</p>																
<input type="checkbox"/> 4 structures or more	points = 4																									
<input checked="" type="checkbox"/> 3 structures	points = 2																									
<input type="checkbox"/> 2 structures	points = 1																									
<input type="checkbox"/> 1 structure	points = 0																									
<p>H 1.2. Hydroperiods (see p. 73) Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)</p> <table border="0"> <tr> <td><input type="checkbox"/> Permanently flooded or inundated</td> <td><input type="checkbox"/> 4 or more types present</td> <td>points = 3</td> </tr> <tr> <td><input type="checkbox"/> Seasonally flooded or inundated</td> <td><input checked="" type="checkbox"/> 3 types present</td> <td>points = 2</td> </tr> <tr> <td><input checked="" type="checkbox"/> Occasionally flooded or inundated</td> <td><input type="checkbox"/> 2 types present</td> <td>point = 1</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturated only</td> <td><input type="checkbox"/> 1 type present</td> <td>points = 0</td> </tr> <tr> <td colspan="3"><input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland</td> </tr> <tr> <td colspan="3"><input checked="" type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland</td> </tr> <tr> <td colspan="3"><input type="checkbox"/> Lake-fringe wetland = 2 points</td> </tr> <tr> <td colspan="3"><input type="checkbox"/> Freshwater tidal wetland = 2 points</td> </tr> </table> <p style="text-align: right;">Map of hydroperiods</p>		<input type="checkbox"/> Permanently flooded or inundated	<input type="checkbox"/> 4 or more types present	points = 3	<input type="checkbox"/> Seasonally flooded or inundated	<input checked="" type="checkbox"/> 3 types present	points = 2	<input checked="" type="checkbox"/> Occasionally flooded or inundated	<input type="checkbox"/> 2 types present	point = 1	<input checked="" type="checkbox"/> Saturated only	<input type="checkbox"/> 1 type present	points = 0	<input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland			<input checked="" type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland			<input type="checkbox"/> Lake-fringe wetland = 2 points			<input type="checkbox"/> Freshwater tidal wetland = 2 points			<p>Figure _____</p> <p style="text-align: center;">2</p>
<input type="checkbox"/> Permanently flooded or inundated	<input type="checkbox"/> 4 or more types present	points = 3																								
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<input type="checkbox"/> Lake-fringe wetland = 2 points																										
<input type="checkbox"/> Freshwater tidal wetland = 2 points																										
<p>H 1.3. Richness of Plant Species (see p. 75) Count the number of plant species in the wetland that cover at least 10 ft². (different patches of the same species can be combined to meet the size threshold) You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle</p> <p>If you counted:</p> <table border="0"> <tr> <td><input type="checkbox"/> > 19 species</td> <td>points = 2</td> </tr> <tr> <td><input checked="" type="checkbox"/> 5 - 19 species</td> <td>points = 1</td> </tr> <tr> <td><input type="checkbox"/> < 5 species</td> <td>points = 0</td> </tr> </table> <p>List species below if you want to:</p>		<input type="checkbox"/> > 19 species	points = 2	<input checked="" type="checkbox"/> 5 - 19 species	points = 1	<input type="checkbox"/> < 5 species	points = 0	<p style="text-align: center;">1</p>																		
<input type="checkbox"/> > 19 species	points = 2																									
<input checked="" type="checkbox"/> 5 - 19 species	points = 1																									
<input type="checkbox"/> < 5 species	points = 0																									

Total for page 5

H 1.4. Interspersion of habitats (see p. 76)

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.



NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

Figure

2

H 1.5. Special Habitat Features: (see p. 77)

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

- ☒ Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).
- ☒ Standing snags (diameter at the bottom > 4 inches) in the wetland
- ☐ Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)
- ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet turned grey/brown*)
- ☐ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. (*structures for egg-laying by amphibians*)
- ☐ Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

2

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

9

Comments

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
<p>H 2.1 Buffers (<i>see p. 80</i>) Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."</p> <p><input type="checkbox"/> 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) Points = 5</p> <p><input type="checkbox"/> 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. Points = 4</p> <p><input type="checkbox"/> 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. Points = 4</p> <p><input type="checkbox"/> 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . Points = 3</p> <p><input type="checkbox"/> 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. Points = 3</p> <p style="text-align: center;">If buffer does not meet any of the criteria above</p> <p><input type="checkbox"/> No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. Points = 2</p> <p><input type="checkbox"/> No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. Points = 2</p> <p><input type="checkbox"/> Heavy grazing in buffer. Points = 1</p> <p><input type="checkbox"/> Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) Points = 0.</p> <p><input checked="" type="checkbox"/> Buffer does not meet any of the criteria above. Points = 1</p> <p style="text-align: right;">Aerial photo showing buffers</p>	<p>Figure _____</p> <p style="text-align: center; font-size: 2em;">1</p>
<p>H 2.2 Corridors and Connections (<i>see p. 81</i>)</p> <p>H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (<i>dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor</i>).</p> <p><input type="checkbox"/> YES = 4 points (<i>go to H 2.3</i>) <input type="checkbox"/> NO = go to H 2.2.2</p> <p>H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? OR a Lake-fringe wetland, if it does not have an undisturbed corridor as in the question above?</p> <p><input type="checkbox"/> YES = 2 points (<i>go to H 2.3</i>) <input type="checkbox"/> NO = H 2.2.3</p> <p>H 2.2.3 Is the wetland:</p> <p><input type="checkbox"/> within 5 mi (8km) of a brackish or salt water estuary OR</p> <p><input type="checkbox"/> within 3 mi of a large field or pasture (>40 acres) OR</p> <p><input type="checkbox"/> within 1 mi of a lake greater than 20 acres?</p> <p><input type="checkbox"/> YES = 1 point <input checked="" type="checkbox"/> NO = 0 points</p>	<p style="text-align: center; font-size: 2em;">0</p>

Total for page 1

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report <http://wdfw.wa.gov/hab/phslist.htm>)

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

- ☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).
- ☐ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).
- ☐ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- ☒ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.
- ☐ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).
- ☒ **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).
- ☒ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A*).
- ☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.
- ☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☒ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.
- ☒ If wetland has **3 or more** priority habitats = **4 points**
- ☐ If wetland has **2** priority habitats = **3 points**
- ☐ If wetland has **1** priority habitat = **1 point** ☐ No habitats = 0 points
- Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)*

Wetland name or number WET B

<p>H 2.4 Wetland Landscape (<i>choose the one description of the landscape around the wetland that best fits</i>) (<i>see p. 84</i>)</p> <p><input type="checkbox"/> There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5</p> <p><input checked="" type="checkbox"/> There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3</p> <p><input type="checkbox"/> There is at least 1 wetland within ½ mile. points = 2</p> <p><input type="checkbox"/> There are no wetlands within ½ mile. points = 0</p>	3
<p>H 2. TOTAL Score - opportunity for providing habitat <i>Add the scores from H2.1, H2.2, H2.3, H2.4</i></p>	8
<p>TOTAL for H 1 from page 14</p>	9
<p>Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1</p>	17

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

Wetland Type <i>Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.</i>	Category
SC 1.0 Estuarine wetlands (see p. 86) Does the wetland unit meet the following criteria for Estuarine wetlands? <input type="checkbox"/> The dominant water regime is tidal, <input type="checkbox"/> Vegetated, and <input type="checkbox"/> With a salinity greater than 0.5 ppt. <input type="checkbox"/> YES = Go to SC 1.1 NO <input checked="" type="checkbox"/> =Go to SC 2.0	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? <input type="checkbox"/> YES = Category I <input type="checkbox"/> NO go to SC 1.2	Cat. I <input type="checkbox"/>
SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? <input type="checkbox"/> YES = Category I <input type="checkbox"/> NO = Category II <input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native <i>Spartina</i> spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of <i>Spartina</i> would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of <i>Spartina</i> in determining the size threshold of 1 acre. <input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. <input type="checkbox"/> The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	<input type="checkbox"/> Cat. I <input type="checkbox"/> Cat. II <input type="checkbox"/> Dual rating I/II

<p>SC 2.0 Natural Heritage Wetlands (<i>see p. 87</i>) Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.</p> <p>SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? (<i>this question is used to screen out most sites before you need to contact WNHP/DNR</i>) S/T/R information from Appendix D <input checked="" type="checkbox"/> or accessed from WNHP/DNR web site <input type="checkbox"/></p> <p>YES <input type="checkbox"/> – contact WNHP/DNR (see p. 79) and go to SC 2.2 NO <input checked="" type="checkbox"/></p> <p>SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species? <input type="checkbox"/> YES = Category I NO <input checked="" type="checkbox"/> not a Heritage Wetland</p>	<input type="checkbox"/> Cat. I
<p>SC 3.0 Bogs (<i>see p. 87</i>) Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below to identify if the wetland is a bog. If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p>1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)? Yes - go to Q. 3 <input type="checkbox"/> <input checked="" type="checkbox"/> No - go to Q. 2</p> <p>2. Does the unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? <input type="checkbox"/> Yes - go to Q. 3 <input checked="" type="checkbox"/> No - Is not a bog for purpose of rating</p> <p>3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the “bog” species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? <input type="checkbox"/> Yes – Is a bog for purpose of rating <input type="checkbox"/> No - go to Q. 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16” deep. If the pH is less than 5.0 and the “bog” plant species in Table 3 are present, the wetland is a bog.</p> <p>1. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann’s spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (> 30% coverage of the total shrub/herbaceous cover)?</p> <p>2. <input type="checkbox"/> YES = Category I No <input checked="" type="checkbox"/> Is not a bog for purpose of rating</p>	<input type="checkbox"/> Cat. I

<p>SC 4.0 Forested Wetlands (see p. 90)</p> <p>Does the wetland unit have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? <i>If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> Old-growth forests: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more.</p> <p>NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter.</p> <p><input type="checkbox"/> Mature forests: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have average diameters (dbh) exceeding 21 inches (53cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth.</p> <p><input type="checkbox"/> YES = Category I NO <input checked="" type="checkbox"/> not a forested wetland with special characteristics</p>	<p>Cat. I <input type="checkbox"/></p>
<p>SC 5.0 Wetlands in Coastal Lagoons (see p. 91)</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <p><input type="checkbox"/> The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks</p> <p><input type="checkbox"/> The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</p> <p><input type="checkbox"/> YES = Go to SC 5.1 NO <input checked="" type="checkbox"/> not a wetland in a coastal lagoon</p> <p>SC 5.1 Does the wetland meets all of the following three conditions?</p> <p><input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).</p> <p><input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.</p> <p><input type="checkbox"/> The wetland is larger than 1/10 acre (4350 square feet)</p> <p><input type="checkbox"/> YES = Category I <input type="checkbox"/> NO = Category II</p>	<p><input type="checkbox"/> Cat. I</p> <p><input type="checkbox"/> Cat. II</p>

SC 6.0 Interdunal Wetlands (*see p. 93*)

Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?

☐ YES - go to SC 6.1 NO ☒ not an interdunal wetland for rating

If you answer yes you will still need to rate the wetland based on its functions.

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula- lands west of SR 103

☐ Grayland-Westport- lands west of SR 105

☐ Ocean Shores-Copalis- lands west of SR 115 and SR 109

SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is once acre or larger?

☐ YES = Category II

☐ NO – go to SC 6.2

SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?

☐ YES = Category III

Cat. II ☐

Cat. III ☐

Category of wetland based on Special Characteristics

Choose the “highest” rating if wetland falls into several categories, and record on p. 1.

If you answered NO for all types enter “Not Applicable” on p.1

☐ Cat. I
☐ Cat. II
☐ Cat. III
☒ N/A

Wetland name or number WET C

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Silverado - Wetland C Date of site visit: 11/19/14

Rated by MK Trained by Ecology? Yes ☒ No ☐ Date of training 04/13

SEC: 29 TOWNSHIP: 24 RANGE: 06E Is S/T/R in Appendix D? Yes ☐ No ☒

Map of wetland unit: Figure _____ Estimated size ~3,200 square feet

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I ___ II ___ III ☒ IV ___

Category I = Score ≥ 70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions

10

Score for Hydrologic Functions

10

Score for Habitat Functions

18

TOTAL score for Functions

38

Category based on SPECIAL CHARACTERISTICS of wetland

I ___ II ___ Does not Apply ___

Final Category (choose the “highest” category from above)

III

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		Depressional	<input checked="" type="checkbox"/>
Natural Heritage Wetland		Riverine	
Bog		Lake-fringe	
Mature Forest		Slope	
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above	<input checked="" type="checkbox"/>	Check if unit has multiple HGM classes present	<input checked="" type="checkbox"/>

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. <i>Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		✓
SP2. <i>Has the wetland unit been documented as habitat for any State listed Threatened or Endangered animal species?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		✓
SP3. <i>Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?</i>		✓
SP4. <i>Does the wetland unit have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		✓

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?

☒ NO – go to 2 ☐ YES – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe** ☐ **NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term “Estuarine” wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it.

Groundwater and surface water runoff are NOT sources of water to the unit.

☒ NO – go to 3 ☐ YES – The wetland class is **Flats**

If your wetland can be classified as a “Flats” wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

____ At least 30% of the open water area is deeper than 6.6 ft (2 m)?

☒ NO – go to 4 ☐ YES – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

____ The wetland is on a slope (*slope can be very gradual*),

____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

____ The water leaves the wetland **without being impounded**?

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).

☒ NO - go to 5 ☐ YES – The wetland class is **Slope**

5. Does the entire wetland unit meet all of the following criteria?

☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

☐ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

☒ **NO** - go to 6 ☐ **YES** - The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ **NO** - go to 7 ☒ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ **NO** - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

<i>HGM Classes within the wetland unit being rated</i>		<i>HGM Class to Use in Rating</i>	
Slope + Riverine	<input type="checkbox"/>	Riverine	<input type="checkbox"/>
Slope + Depressional	<input type="checkbox"/>	Depressional	<input type="checkbox"/>
Slope + Lake-fringe	<input type="checkbox"/>	Lake-fringe	<input type="checkbox"/>
Depressional + Riverine along stream within boundary	<input checked="" type="checkbox"/>	Depressional	<input checked="" type="checkbox"/>
Depressional + Lake-fringe	<input type="checkbox"/>	Depressional	<input type="checkbox"/>
Salt Water Tidal Fringe and any other class of freshwater wetland	<input type="checkbox"/>	Treat as ESTUARINE under wetlands with special characteristics	<input type="checkbox"/>

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

D Depressional and Flats Wetlands		Points
WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality		(only 1 score per box)
D	D 1. Does the wetland unit have the <u>potential</u> to improve water quality?	(see p.38)
D	D 1.1 Characteristics of surface water flows out of the wetland: <input type="checkbox"/> Unit is a depression with no surface water leaving it (no outlet) points = 3 <input checked="" type="checkbox"/> Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 <input type="checkbox"/> Unit has an unconstricted, or slightly constricted, surface outlet (<i>permanently flowing</i>) points = 1 <input type="checkbox"/> Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1 <i>(If ditch is not permanently flowing treat unit as "intermittently flowing")</i> Provide photo or drawing	Figure ____ 2
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (<i>use NRCS definitions</i>) <input type="checkbox"/> YES points = 4 <input checked="" type="checkbox"/> NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 <input checked="" type="checkbox"/> Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 <input type="checkbox"/> Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 <input type="checkbox"/> Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	Figure ____ 3
D	D1.4 Characteristics of seasonal ponding or inundation. <i>This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.</i> <input type="checkbox"/> Area seasonally ponded is > ½ total area of wetland points = 4 <input type="checkbox"/> Area seasonally ponded is > ¼ total area of wetland points = 2 <input checked="" type="checkbox"/> Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods	Figure ____ 0
D	Total for D 1 <i>Add the points in the boxes above</i>	5
D	D 2. Does the wetland unit have the <u>opportunity</u> to improve water quality? Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. <i>Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.</i> <input type="checkbox"/> Grazing in the wetland or within 150 ft <input type="checkbox"/> Untreated stormwater discharges to wetland <input type="checkbox"/> Tilled fields or orchards within 150 ft of wetland <input type="checkbox"/> A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging <input checked="" type="checkbox"/> Residential, urban areas, golf courses are within 150 ft of wetland <input type="checkbox"/> Wetland is fed by groundwater high in phosphorus or nitrogen <input type="checkbox"/> Other _____ <input checked="" type="checkbox"/> YES multiplier is 2 <input type="checkbox"/> NO multiplier is 1	(see p. 44) multiplier 2
D	TOTAL - Water Quality Functions Multiply the score from D1 by D2 <i>Add score to table on p. 1</i>	10

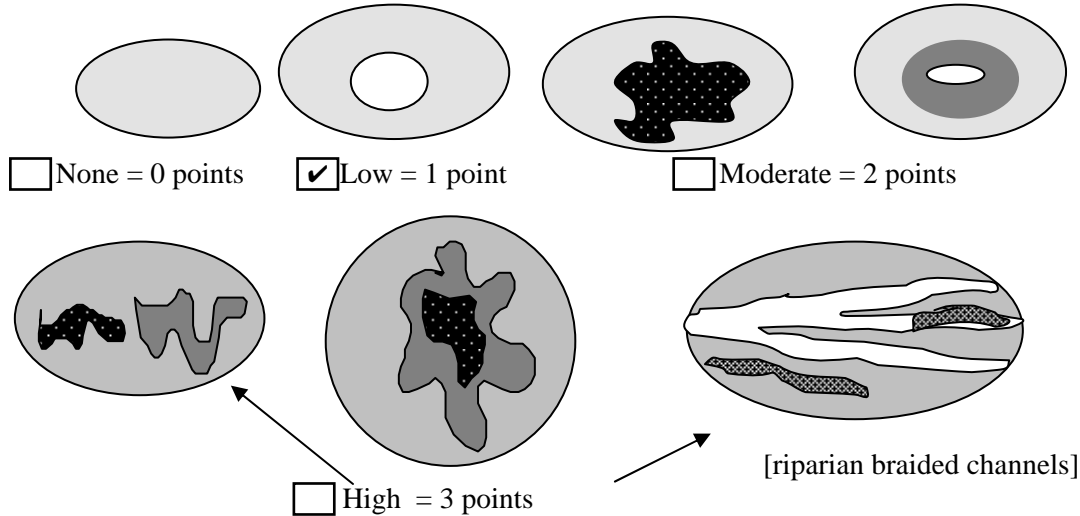
D Depressional and Flats Wetlands		Points (only 1 score per box)
HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation		
	D 3. Does the wetland unit have the <u>potential</u> to reduce flooding and erosion?	(see p.46)
D	<p>D 3.1 Characteristics of surface water flows out of the wetland unit</p> <p><input type="checkbox"/> Unit is a depression with no surface water leaving it (no outlet) points = 4</p> <p><input checked="" type="checkbox"/> Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2</p> <p><input type="checkbox"/> Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1 (If ditch is not permanently flowing treat unit as "intermittently flowing")</p> <p><input type="checkbox"/> Unit has an unconstricted, or slightly constricted, surface outlet (<i>permanently flowing</i>) points = 0</p>	2
D	<p>D 3.2 Depth of storage during wet periods</p> <p><i>Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).</i></p> <p><input type="checkbox"/> Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7</p> <p><input type="checkbox"/> The wetland is a "headwater" wetland points = 5</p> <p><input type="checkbox"/> Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5</p> <p><input type="checkbox"/> Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3</p> <p><input type="checkbox"/> Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1</p> <p><input checked="" type="checkbox"/> Marks of ponding less than 0.5 ft points = 0</p>	0
D	<p>D 3.3 Contribution of wetland unit to storage in the watershed</p> <p><i>Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.</i></p> <p><input type="checkbox"/> The area of the basin is less than 10 times the area of unit points = 5</p> <p><input checked="" type="checkbox"/> The area of the basin is 10 to 100 times the area of the unit points = 3</p> <p><input type="checkbox"/> The area of the basin is more than 100 times the area of the unit points = 0</p> <p><input type="checkbox"/> Entire unit is in the FLATS class points = 5</p>	3
D	Total for D 3 <i>Add the points in the boxes above</i>	5
D	<p>D 4. Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion?</p> <p>Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur.</p> <p><i>Note which of the following indicators of opportunity apply.</i></p> <p><input type="checkbox"/> Wetland is in a headwater of a river or stream that has flooding problems</p> <p><input checked="" type="checkbox"/> Wetland drains to a river or stream that has flooding problems</p> <p><input type="checkbox"/> Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems</p> <p><input type="checkbox"/> Other _____</p> <p><input checked="" type="checkbox"/> YES multiplier is 2 <input type="checkbox"/> NO multiplier is 1</p>	multiplier 2
D	TOTAL - Hydrologic Functions Multiply the score from D 3 by D 4 <i>Add score to table on p. 1</i>	10

These questions apply to wetlands of all HGM classes.		Points (only 1 score per box)																								
HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat																										
H 1. Does the wetland unit have the <u>potential</u> to provide habitat for many species?																										
<p>H 1.1 Vegetation structure (see p. 72) Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.</p> <p> <input type="checkbox"/> Aquatic bed <input type="checkbox"/> Emergent plants <input type="checkbox"/> Scrub/shrub (areas where shrubs have >30% cover) <input checked="" type="checkbox"/> Forested (areas where trees have >30% cover) If the unit has a forested class check if: <input checked="" type="checkbox"/> The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon Add the number of vegetation structures that qualify. If you have:</p> <table border="0"> <tr> <td><input type="checkbox"/> 4 structures or more</td> <td>points = 4</td> </tr> <tr> <td><input type="checkbox"/> 3 structures</td> <td>points = 2</td> </tr> <tr> <td><input checked="" type="checkbox"/> 2 structures</td> <td>points = 1</td> </tr> <tr> <td><input type="checkbox"/> 1 structure</td> <td>points = 0</td> </tr> </table> <p>Map of Cowardin vegetation classes</p>		<input type="checkbox"/> 4 structures or more	points = 4	<input type="checkbox"/> 3 structures	points = 2	<input checked="" type="checkbox"/> 2 structures	points = 1	<input type="checkbox"/> 1 structure	points = 0	<p>Figure _____</p> <p style="text-align: center;">1</p>																
<input type="checkbox"/> 4 structures or more	points = 4																									
<input type="checkbox"/> 3 structures	points = 2																									
<input checked="" type="checkbox"/> 2 structures	points = 1																									
<input type="checkbox"/> 1 structure	points = 0																									
<p>H 1.2. Hydroperiods (see p. 73) Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)</p> <table border="0"> <tr> <td><input type="checkbox"/> Permanently flooded or inundated</td> <td><input type="checkbox"/> 4 or more types present</td> <td>points = 3</td> </tr> <tr> <td><input type="checkbox"/> Seasonally flooded or inundated</td> <td><input checked="" type="checkbox"/> 3 types present</td> <td>points = 2</td> </tr> <tr> <td><input checked="" type="checkbox"/> Occasionally flooded or inundated</td> <td><input type="checkbox"/> 2 types present</td> <td>point = 1</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturated only</td> <td><input type="checkbox"/> 1 type present</td> <td>points = 0</td> </tr> <tr> <td colspan="3"><input checked="" type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland</td> </tr> <tr> <td colspan="3"><input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland</td> </tr> <tr> <td colspan="3"><input type="checkbox"/> Lake-fringe wetland = 2 points</td> </tr> <tr> <td colspan="3"><input type="checkbox"/> Freshwater tidal wetland = 2 points</td> </tr> </table> <p style="text-align: right;">Map of hydroperiods</p>		<input type="checkbox"/> Permanently flooded or inundated	<input type="checkbox"/> 4 or more types present	points = 3	<input type="checkbox"/> Seasonally flooded or inundated	<input checked="" type="checkbox"/> 3 types present	points = 2	<input checked="" type="checkbox"/> Occasionally flooded or inundated	<input type="checkbox"/> 2 types present	point = 1	<input checked="" type="checkbox"/> Saturated only	<input type="checkbox"/> 1 type present	points = 0	<input checked="" type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland			<input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland			<input type="checkbox"/> Lake-fringe wetland = 2 points			<input type="checkbox"/> Freshwater tidal wetland = 2 points			<p>Figure _____</p> <p style="text-align: center;">3</p>
<input type="checkbox"/> Permanently flooded or inundated	<input type="checkbox"/> 4 or more types present	points = 3																								
<input type="checkbox"/> Seasonally flooded or inundated	<input checked="" type="checkbox"/> 3 types present	points = 2																								
<input checked="" type="checkbox"/> Occasionally flooded or inundated	<input type="checkbox"/> 2 types present	point = 1																								
<input checked="" type="checkbox"/> Saturated only	<input type="checkbox"/> 1 type present	points = 0																								
<input checked="" type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland																										
<input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland																										
<input type="checkbox"/> Lake-fringe wetland = 2 points																										
<input type="checkbox"/> Freshwater tidal wetland = 2 points																										
<p>H 1.3. Richness of Plant Species (see p. 75) Count the number of plant species in the wetland that cover at least 10 ft². (different patches of the same species can be combined to meet the size threshold) You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle</p> <p>If you counted:</p> <table border="0"> <tr> <td><input type="checkbox"/> > 19 species</td> <td>points = 2</td> </tr> <tr> <td><input checked="" type="checkbox"/> 5 - 19 species</td> <td>points = 1</td> </tr> <tr> <td><input type="checkbox"/> < 5 species</td> <td>points = 0</td> </tr> </table> <p>List species below if you want to:</p>		<input type="checkbox"/> > 19 species	points = 2	<input checked="" type="checkbox"/> 5 - 19 species	points = 1	<input type="checkbox"/> < 5 species	points = 0	<p style="text-align: center;">1</p>																		
<input type="checkbox"/> > 19 species	points = 2																									
<input checked="" type="checkbox"/> 5 - 19 species	points = 1																									
<input type="checkbox"/> < 5 species	points = 0																									

Total for page 5

H 1.4. Interspersion of habitats (see p. 76)

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure

1

H 1.5. Special Habitat Features: (see p. 77)

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

- ☒ Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).
- ☒ Standing snags (diameter at the bottom > 4 inches) in the wetland
- ☐ Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)
- ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet turned grey/brown*)
- ☐ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. (*structures for egg-laying by amphibians*)
- ☐ Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

2

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

8

Comments

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
<p>H 2.1 Buffers (<i>see p. 80</i>) Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."</p> <p><input type="checkbox"/> 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) Points = 5</p> <p><input type="checkbox"/> 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. Points = 4</p> <p><input type="checkbox"/> 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. Points = 4</p> <p><input type="checkbox"/> 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . Points = 3</p> <p><input checked="" type="checkbox"/> 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. Points = 3</p> <p style="text-align: center;">If buffer does not meet any of the criteria above</p> <p><input type="checkbox"/> No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. Points = 2</p> <p><input type="checkbox"/> No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. Points = 2</p> <p><input type="checkbox"/> Heavy grazing in buffer. Points = 1</p> <p><input type="checkbox"/> Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) Points = 0.</p> <p><input type="checkbox"/> Buffer does not meet any of the criteria above. Points = 1</p> <p style="text-align: right;">Aerial photo showing buffers</p>	<p>Figure _____</p> <p style="text-align: center; font-size: 2em;">3</p>
<p>H 2.2 Corridors and Connections (<i>see p. 81</i>)</p> <p>H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (<i>dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor</i>).</p> <p><input type="checkbox"/> YES = 4 points (<i>go to H 2.3</i>) <input type="checkbox"/> NO = go to H 2.2.2</p> <p>H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? OR a Lake-fringe wetland, if it does not have an undisturbed corridor as in the question above?</p> <p><input type="checkbox"/> YES = 2 points (<i>go to H 2.3</i>) <input type="checkbox"/> NO = H 2.2.3</p> <p>H 2.2.3 Is the wetland:</p> <p><input type="checkbox"/> within 5 mi (8km) of a brackish or salt water estuary OR</p> <p><input type="checkbox"/> within 3 mi of a large field or pasture (>40 acres) OR</p> <p><input type="checkbox"/> within 1 mi of a lake greater than 20 acres?</p> <p><input type="checkbox"/> YES = 1 point <input checked="" type="checkbox"/> NO = 0 points</p>	<p style="text-align: center; font-size: 2em;">0</p>

Total for page 3

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report <http://wdfw.wa.gov/hab/phslist.htm>)

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

- ☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).
- ☐ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).
- ☐ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- ☒ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.
- ☐ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).
- ☒ **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).
- ☒ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A*).
- ☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.
- ☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☒ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.
- ☒ If wetland has **3 or more** priority habitats = **4 points**
- ☐ If wetland has **2** priority habitats = **3 points**
- ☐ If wetland has **1** priority habitat = **1 point** ☐ No habitats = 0 points
- Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)*

4

<p>H 2.4 Wetland Landscape (<i>choose the one description of the landscape around the wetland that best fits</i>) (<i>see p. 84</i>)</p> <p><input type="checkbox"/> There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5</p> <p><input checked="" type="checkbox"/> There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3</p> <p><input type="checkbox"/> There is at least 1 wetland within ½ mile. points = 2</p> <p><input type="checkbox"/> There are no wetlands within ½ mile. points = 0</p>	3
<p>H 2. TOTAL Score - opportunity for providing habitat <i>Add the scores from H2.1, H2.2, H2.3, H2.4</i></p>	10
<p>TOTAL for H 1 from page 14</p>	8
<p>Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1</p>	18

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

Wetland Type <i>Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.</i>	Category
SC 1.0 Estuarine wetlands (see p. 86) Does the wetland unit meet the following criteria for Estuarine wetlands? <input type="checkbox"/> The dominant water regime is tidal, <input type="checkbox"/> Vegetated, and <input type="checkbox"/> With a salinity greater than 0.5 ppt. <input type="checkbox"/> YES = Go to SC 1.1 NO <input checked="" type="checkbox"/> =Go to SC 2.0	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? <input type="checkbox"/> YES = Category I <input type="checkbox"/> NO go to SC 1.2	Cat. I <input type="checkbox"/>
SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? <input type="checkbox"/> YES = Category I <input type="checkbox"/> NO = Category II <input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native <i>Spartina</i> spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of <i>Spartina</i> would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of <i>Spartina</i> in determining the size threshold of 1 acre. <input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. <input type="checkbox"/> The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	<input type="checkbox"/> Cat. I <input type="checkbox"/> Cat. II <input type="checkbox"/> Dual rating I/II

<p>SC 2.0 Natural Heritage Wetlands (<i>see p. 87</i>)</p> <p>Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.</p> <p>SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? (<i>this question is used to screen out most sites before you need to contact WNHP/DNR</i>)</p> <p>S/T/R information from Appendix D <input checked="" type="checkbox"/> or accessed from WNHP/DNR web site <input type="checkbox"/></p> <p>YES <input type="checkbox"/> – contact WNHP/DNR (see p. 79) and go to SC 2.2 NO <input checked="" type="checkbox"/></p> <p>SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species?</p> <p><input type="checkbox"/> YES = Category I NO <input checked="" type="checkbox"/> not a Heritage Wetland</p>	<input type="checkbox"/> Cat. I
<p>SC 3.0 Bogs (<i>see p. 87</i>)</p> <p>Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below to identify if the wetland is a bog. If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p>1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)? Yes - go to Q. 3 <input type="checkbox"/> <input checked="" type="checkbox"/> No - go to Q. 2</p> <p>2. Does the unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond?</p> <p><input type="checkbox"/> Yes - go to Q. 3 <input checked="" type="checkbox"/> No - Is not a bog for purpose of rating</p> <p>3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the “bog” species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)?</p> <p><input type="checkbox"/> Yes – Is a bog for purpose of rating <input type="checkbox"/> No - go to Q. 4</p> <p>NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16” deep. If the pH is less than 5.0 and the “bog” plant species in Table 3 are present, the wetland is a bog.</p> <p>1. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann’s spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (> 30% coverage of the total shrub/herbaceous cover)?</p> <p>2. <input type="checkbox"/> YES = Category I No <input checked="" type="checkbox"/> Is not a bog for purpose of rating</p>	<input type="checkbox"/> Cat. I

<p>SC 4.0 Forested Wetlands (see p. 90)</p> <p>Does the wetland unit have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? <i>If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> Old-growth forests: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more.</p> <p>NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter.</p> <p><input type="checkbox"/> Mature forests: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have average diameters (dbh) exceeding 21 inches (53cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth.</p> <p><input type="checkbox"/> YES = Category I NO <input checked="" type="checkbox"/> not a forested wetland with special characteristics</p>	<p>Cat. I <input type="checkbox"/></p>
<p>SC 5.0 Wetlands in Coastal Lagoons (see p. 91)</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <p><input type="checkbox"/> The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks</p> <p><input type="checkbox"/> The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</p> <p><input type="checkbox"/> YES = Go to SC 5.1 NO <input checked="" type="checkbox"/> not a wetland in a coastal lagoon</p> <p>SC 5.1 Does the wetland meets all of the following three conditions?</p> <p><input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).</p> <p><input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.</p> <p><input type="checkbox"/> The wetland is larger than 1/10 acre (4350 square feet)</p> <p><input type="checkbox"/> YES = Category I <input type="checkbox"/> NO = Category II</p>	<p><input type="checkbox"/> Cat. I</p> <p><input type="checkbox"/> Cat. II</p>

SC 6.0 Interdunal Wetlands (*see p. 93*)

Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?

☐ YES - go to SC 6.1 NO ☒ not an interdunal wetland for rating

If you answer yes you will still need to rate the wetland based on its functions.

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula- lands west of SR 103

☐ Grayland-Westport- lands west of SR 105

☐ Ocean Shores-Copalis- lands west of SR 115 and SR 109

SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is once acre or larger?

☐ YES = Category II

☐ NO – go to SC 6.2

SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?

☐ YES = Category III

Cat. II ☐

Cat. III ☐

Category of wetland based on Special Characteristics

Choose the “highest” rating if wetland falls into several categories, and record on p. 1.

If you answered NO for all types enter “Not Applicable” on p.1

☐ Cat. I
☐ Cat. II
☐ Cat. III
☒ N/A

Wetland name or number WET D

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Silverado - Wetland D Date of site visit: 06/21/17

Rated by MK Trained by Ecology? Yes ☒ No ☐ Date of training 04/13

SEC: 29 TOWNSHIP: 24 RANGE: 06E Is S/T/R in Appendix D? Yes ☐ No ☒

Map of wetland unit: Figure Estimated size 0.007 AC

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I ☐ II ☐ III ☒ IV ☐

Category I = Score ≥ 70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions

10

Score for Hydrologic Functions

10

Score for Habitat Functions

16

TOTAL score for Functions

36

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ II ☐ Does not Apply ☐

Final Category (choose the “highest” category from above)

III

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		Depressional	<input checked="" type="checkbox"/>
Natural Heritage Wetland		Riverine	
Bog		Lake-fringe	
Mature Forest		Slope	
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above	<input checked="" type="checkbox"/>	Check if unit has multiple HGM classes present	<input checked="" type="checkbox"/>

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. <i>Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		✓
SP2. <i>Has the wetland unit been documented as habitat for any State listed Threatened or Endangered animal species?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		✓
SP3. <i>Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?</i>		✓
SP4. <i>Does the wetland unit have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		✓

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?

☒ NO – go to 2 ☐ YES – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? ☒ YES – **Freshwater Tidal Fringe** ☐ NO – **Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term “Estuarine” wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it.

Groundwater and surface water runoff are NOT sources of water to the unit.

☒ NO – go to 3 ☐ YES – The wetland class is **Flats**

If your wetland can be classified as a “Flats” wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

____ At least 30% of the open water area is deeper than 6.6 ft (2 m)?

☒ NO – go to 4 ☐ YES – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

____ The wetland is on a slope (*slope can be very gradual*),

____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

____ The water leaves the wetland **without being impounded**?

NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*

☒ NO - go to 5 ☐ YES – The wetland class is **Slope**

5. Does the entire wetland unit **meet all** of the following criteria?

_____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

_____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

☒ NO - go to 6 ☐ YES – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO – go to 7 ☒ YES – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO – go to 8 ☐ YES – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. **NOTE:** Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

<i>HGM Classes within the wetland unit being rated</i>		<i>HGM Class to Use in Rating</i>	
Slope + Riverine	<input type="checkbox"/>	Riverine	<input type="checkbox"/>
Slope + Depressional	<input type="checkbox"/>	Depressional	<input type="checkbox"/>
Slope + Lake-fringe	<input type="checkbox"/>	Lake-fringe	<input type="checkbox"/>
Depressional + Riverine along stream within boundary	<input checked="" type="checkbox"/>	Depressional	<input checked="" type="checkbox"/>
Depressional + Lake-fringe	<input type="checkbox"/>	Depressional	<input type="checkbox"/>
Salt Water Tidal Fringe and any other class of freshwater wetland	<input type="checkbox"/>	Treat as ESTUARINE under wetlands with special characteristics	<input type="checkbox"/>

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

D Depressional and Flats Wetlands		Points
WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality		(only 1 score per box)
D	D 1. Does the wetland unit have the <u>potential</u> to improve water quality?	(see p.38)
D	D 1.1 Characteristics of surface water flows out of the wetland: <input type="checkbox"/> Unit is a depression with no surface water leaving it (no outlet) points = 3 <input checked="" type="checkbox"/> Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 <input type="checkbox"/> Unit has an unconstricted, or slightly constricted, surface outlet (<i>permanently flowing</i>) points = 1 <input type="checkbox"/> Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1 <i>(If ditch is not permanently flowing treat unit as "intermittently flowing")</i> Provide photo or drawing	Figure ____ 2
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (<i>use NRCS definitions</i>) <input type="checkbox"/> YES points = 4 <input checked="" type="checkbox"/> NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 <input checked="" type="checkbox"/> Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 <input type="checkbox"/> Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 <input type="checkbox"/> Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	Figure ____ 3
D	D1.4 Characteristics of seasonal ponding or inundation. <i>This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.</i> <input type="checkbox"/> Area seasonally ponded is > ½ total area of wetland points = 4 <input type="checkbox"/> Area seasonally ponded is > ¼ total area of wetland points = 2 <input checked="" type="checkbox"/> Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods	Figure ____ 0
D	Total for D 1 <i>Add the points in the boxes above</i>	5
D	D 2. Does the wetland unit have the <u>opportunity</u> to improve water quality? Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. <i>Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.</i> <input type="checkbox"/> Grazing in the wetland or within 150 ft <input type="checkbox"/> Untreated stormwater discharges to wetland <input type="checkbox"/> Tilled fields or orchards within 150 ft of wetland <input type="checkbox"/> A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging <input checked="" type="checkbox"/> Residential, urban areas, golf courses are within 150 ft of wetland <input type="checkbox"/> Wetland is fed by groundwater high in phosphorus or nitrogen <input type="checkbox"/> Other _____ <input checked="" type="checkbox"/> YES multiplier is 2 <input type="checkbox"/> NO multiplier is 1	(see p. 44) multiplier 2
D	TOTAL - Water Quality Functions Multiply the score from D1 by D2 <i>Add score to table on p. 1</i>	10

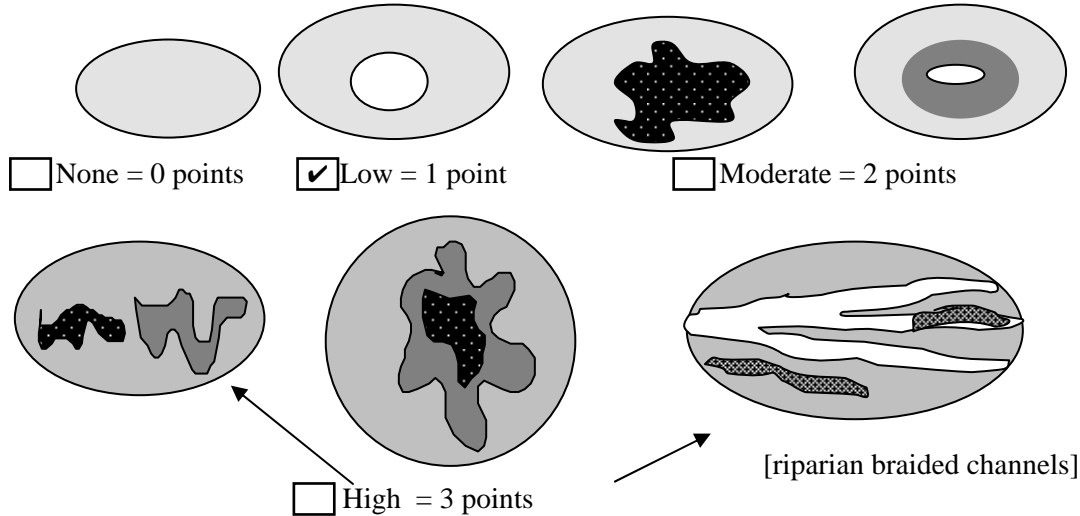
D Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation		Points (only 1 score per box)
	D 3. Does the wetland unit have the <u>potential</u> to reduce flooding and erosion?	(see p.46)
D	D 3.1 Characteristics of surface water flows out of the wetland unit <input type="checkbox"/> Unit is a depression with no surface water leaving it (no outlet) points = 4 <input checked="" type="checkbox"/> Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 <input type="checkbox"/> Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1 <i>(If ditch is not permanently flowing treat unit as "intermittently flowing")</i> <input type="checkbox"/> Unit has an unconstricted, or slightly constricted, surface outlet (<i>permanently flowing</i>) points = 0	2
D	D 3.2 Depth of storage during wet periods <i>Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).</i> <input type="checkbox"/> Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 <input type="checkbox"/> The wetland is a "headwater" wetland points = 5 <input type="checkbox"/> Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 <input type="checkbox"/> Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 <input type="checkbox"/> Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 <input checked="" type="checkbox"/> Marks of ponding less than 0.5 ft points = 0	0
D	D 3.3 Contribution of wetland unit to storage in the watershed <i>Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.</i> <input type="checkbox"/> The area of the basin is less than 10 times the area of unit points = 5 <input checked="" type="checkbox"/> The area of the basin is 10 to 100 times the area of the unit points = 3 <input type="checkbox"/> The area of the basin is more than 100 times the area of the unit points = 0 <input type="checkbox"/> Entire unit is in the FLATS class points = 5	3
D	Total for D 3 <i>Add the points in the boxes above</i>	5
D	D 4. Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. <i>Note which of the following indicators of opportunity apply.</i> <input type="checkbox"/> Wetland is in a headwater of a river or stream that has flooding problems <input checked="" type="checkbox"/> Wetland drains to a river or stream that has flooding problems <input type="checkbox"/> Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems <input type="checkbox"/> Other _____ <input checked="" type="checkbox"/> YES multiplier is 2 <input type="checkbox"/> NO multiplier is 1	(see p. 49) multiplier 2
D	TOTAL - Hydrologic Functions Multiply the score from D 3 by D 4 <i>Add score to table on p. 1</i>	10

These questions apply to wetlands of all HGM classes.		Points (only 1 score per box)
HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat		
H 1. Does the wetland unit have the <u>potential</u> to provide habitat for many species?		
<p>H 1.1 Vegetation structure (see p. 72) Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.</p> <p> <input type="checkbox"/> Aquatic bed <input type="checkbox"/> Emergent plants <input type="checkbox"/> Scrub/shrub (areas where shrubs have >30% cover) <input checked="" type="checkbox"/> Forested (areas where trees have >30% cover) If the unit has a forested class check if: <input checked="" type="checkbox"/> The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon Add the number of vegetation structures that qualify. If you have:</p> <p> <input type="checkbox"/> 4 structures or more points = 4 <input type="checkbox"/> 3 structures points = 2 <input checked="" type="checkbox"/> 2 structures points = 1 <input type="checkbox"/> 1 structure points = 0 </p> <p>Map of Cowardin vegetation classes</p>		<p>Figure _____</p> <p>1</p>
<p>H 1.2. Hydroperiods (see p. 73) Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)</p> <p> <input type="checkbox"/> Permanently flooded or inundated <input type="checkbox"/> Seasonally flooded or inundated <input checked="" type="checkbox"/> Occasionally flooded or inundated <input checked="" type="checkbox"/> Saturated only <input checked="" type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland <input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland <input type="checkbox"/> Lake-fringe wetland = 2 points <input type="checkbox"/> Freshwater tidal wetland = 2 points </p> <p> <input type="checkbox"/> 4 or more types present points = 3 <input checked="" type="checkbox"/> 3 types present points = 2 <input type="checkbox"/> 2 types present point = 1 <input type="checkbox"/> 1 type present points = 0 </p> <p>Map of hydroperiods</p>		<p>Figure _____</p> <p>3</p>
<p>H 1.3. Richness of Plant Species (see p. 75) Count the number of plant species in the wetland that cover at least 10 ft². (different patches of the same species can be combined to meet the size threshold) You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle</p> <p>If you counted:</p> <p>List species below if you want to:</p> <p> <input type="checkbox"/> > 19 species points = 2 <input checked="" type="checkbox"/> 5 - 19 species points = 1 <input type="checkbox"/> < 5 species points = 0 </p>		<p>1</p>

Total for page 5

H 1.4. Interspersion of habitats (see p. 76)

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.



NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes

Figure

1

H 1.5. Special Habitat Features: (see p. 77)

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

- ☒ Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).
- ☒ Standing snags (diameter at the bottom > 4 inches) in the wetland
- ☐ Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)
- ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet turned grey/brown*)
- ☐ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. (*structures for egg-laying by amphibians*)
- ☐ Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

2

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

8

Comments

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
<p>H 2.1 Buffers (<i>see p. 80</i>) Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."</p> <p><input type="checkbox"/> 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) Points = 5</p> <p><input type="checkbox"/> 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. Points = 4</p> <p><input type="checkbox"/> 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. Points = 4</p> <p><input type="checkbox"/> 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . Points = 3</p> <p><input type="checkbox"/> 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. Points = 3</p> <p style="text-align: center;">If buffer does not meet any of the criteria above</p> <p><input type="checkbox"/> No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. Points = 2</p> <p><input type="checkbox"/> No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. Points = 2</p> <p><input type="checkbox"/> Heavy grazing in buffer. Points = 1</p> <p><input type="checkbox"/> Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) Points = 0.</p> <p><input checked="" type="checkbox"/> Buffer does not meet any of the criteria above. Points = 1</p> <p style="text-align: right;">Aerial photo showing buffers</p>	<p>Figure _____</p> <p style="text-align: center; font-size: 2em;">1</p>
<p>H 2.2 Corridors and Connections (<i>see p. 81</i>)</p> <p>H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (<i>dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor</i>).</p> <p><input type="checkbox"/> YES = 4 points (<i>go to H 2.3</i>) <input type="checkbox"/> NO = go to H 2.2.2</p> <p>H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? OR a Lake-fringe wetland, if it does not have an undisturbed corridor as in the question above?</p> <p><input type="checkbox"/> YES = 2 points (<i>go to H 2.3</i>) <input type="checkbox"/> NO = H 2.2.3</p> <p>H 2.2.3 Is the wetland:</p> <p><input type="checkbox"/> within 5 mi (8km) of a brackish or salt water estuary OR</p> <p><input type="checkbox"/> within 3 mi of a large field or pasture (>40 acres) OR</p> <p><input type="checkbox"/> within 1 mi of a lake greater than 20 acres?</p> <p><input type="checkbox"/> YES = 1 point <input checked="" type="checkbox"/> NO = 0 points</p>	<p style="text-align: center; font-size: 2em;">0</p>

Total for page 1

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report <http://wdfw.wa.gov/hab/phslist.htm>)

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

- ☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).
- ☐ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).
- ☐ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- ☒ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.
- ☐ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).
- ☒ **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).
- ☒ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A*).
- ☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.
- ☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☒ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.
- ☒ If wetland has **3 or more** priority habitats = **4 points**
- ☐ If wetland has **2** priority habitats = **3 points**
- ☐ If wetland has **1** priority habitat = **1 point** ☐ No habitats = 0 points
- Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)*

<p>H 2.4 Wetland Landscape (<i>choose the one description of the landscape around the wetland that best fits</i>) (<i>see p. 84</i>)</p> <p><input type="checkbox"/> There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5</p> <p><input checked="" type="checkbox"/> There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3</p> <p><input type="checkbox"/> There is at least 1 wetland within ½ mile. points = 2</p> <p><input type="checkbox"/> There are no wetlands within ½ mile. points = 0</p>	3
<p>H 2. TOTAL Score - opportunity for providing habitat <i>Add the scores from H2.1, H2.2, H2.3, H2.4</i></p>	8
<p>TOTAL for H 1 from page 14</p>	8
<p>Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1</p>	16

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

Wetland Type <i>Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.</i>	Category
SC 1.0 Estuarine wetlands (see p. 86) Does the wetland unit meet the following criteria for Estuarine wetlands? <input type="checkbox"/> The dominant water regime is tidal, <input type="checkbox"/> Vegetated, and <input type="checkbox"/> With a salinity greater than 0.5 ppt. <input type="checkbox"/> YES = Go to SC 1.1 NO <input checked="" type="checkbox"/> =Go to SC 2.0	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? <input type="checkbox"/> YES = Category I <input type="checkbox"/> NO go to SC 1.2	Cat. I <input type="checkbox"/>
SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? <input type="checkbox"/> YES = Category I <input type="checkbox"/> NO = Category II <input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native <i>Spartina</i> spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of <i>Spartina</i> would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of <i>Spartina</i> in determining the size threshold of 1 acre. <input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. <input type="checkbox"/> The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	<input type="checkbox"/> Cat. I <input type="checkbox"/> Cat. II <input type="checkbox"/> Dual rating I/II

<p>SC 2.0 Natural Heritage Wetlands (<i>see p. 87</i>) Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.</p> <p>SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? (<i>this question is used to screen out most sites before you need to contact WNHP/DNR</i>) S/T/R information from Appendix D <input checked="" type="checkbox"/> or accessed from WNHP/DNR web site <input type="checkbox"/></p> <p>YES <input type="checkbox"/> – contact WNHP/DNR (see p. 79) and go to SC 2.2 NO <input checked="" type="checkbox"/></p> <p>SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species? <input type="checkbox"/> YES = Category I NO <input checked="" type="checkbox"/> not a Heritage Wetland</p>	<input type="checkbox"/> Cat. I
<p>SC 3.0 Bogs (<i>see p. 87</i>) Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below to identify if the wetland is a bog. If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p>1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)? Yes - go to Q. 3 <input type="checkbox"/> <input checked="" type="checkbox"/> No - go to Q. 2</p> <p>2. Does the unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? <input type="checkbox"/> Yes - go to Q. 3 <input checked="" type="checkbox"/> No - Is not a bog for purpose of rating</p> <p>3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the “bog” species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? <input type="checkbox"/> Yes – Is a bog for purpose of rating <input type="checkbox"/> No - go to Q. 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16” deep. If the pH is less than 5.0 and the “bog” plant species in Table 3 are present, the wetland is a bog.</p> <p>1. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann’s spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (> 30% coverage of the total shrub/herbaceous cover)?</p> <p>2. <input type="checkbox"/> YES = Category I No <input checked="" type="checkbox"/> Is not a bog for purpose of rating</p>	<input type="checkbox"/> Cat. I

<p>SC 4.0 Forested Wetlands (see p. 90) Does the wetland unit have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? <i>If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> Old-growth forests: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more.</p> <p>NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter.</p> <p><input type="checkbox"/> Mature forests: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have average diameters (dbh) exceeding 21 inches (53cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth.</p> <p><input type="checkbox"/> YES = Category I NO <input checked="" type="checkbox"/> not a forested wetland with special characteristics</p>	<p>Cat. I <input type="checkbox"/></p>
<p>SC 5.0 Wetlands in Coastal Lagoons (see p. 91) Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <p><input type="checkbox"/> The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks</p> <p><input type="checkbox"/> The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</p> <p><input type="checkbox"/> YES = Go to SC 5.1 NO <input checked="" type="checkbox"/> not a wetland in a coastal lagoon</p> <p>SC 5.1 Does the wetland meets all of the following three conditions?</p> <p><input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).</p> <p><input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.</p> <p><input type="checkbox"/> The wetland is larger than 1/10 acre (4350 square feet)</p> <p><input type="checkbox"/> YES = Category I <input type="checkbox"/> NO = Category II</p>	<p><input type="checkbox"/> Cat. I</p> <p><input type="checkbox"/> Cat. II</p>

<p>SC 6.0 Interdunal Wetlands (<i>see p. 93</i>)</p> <p>Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?</p> <p><input type="checkbox"/> YES - go to SC 6.1 NO <input checked="" type="checkbox"/> not an interdunal wetland for rating</p> <p><i>If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <p><input type="checkbox"/> Long Beach Peninsula- lands west of SR 103</p> <p><input type="checkbox"/> Grayland-Westport- lands west of SR 105</p> <p><input type="checkbox"/> Ocean Shores-Copalis- lands west of SR 115 and SR 109</p> <p>SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is once acre or larger?</p> <p><input type="checkbox"/> YES = Category II <input type="checkbox"/> NO – go to SC 6.2</p> <p>SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?</p> <p><input type="checkbox"/> YES = Category III</p>	<p>Cat. II <input type="checkbox"/></p> <p>Cat. III <input type="checkbox"/></p>
<p>Category of wetland based on Special Characteristics</p> <p><i>Choose the “highest” rating if wetland falls into several categories, and record on p. 1.</i></p> <p>If you answered NO for all types enter “Not Applicable” on p.1</p>	<p><input type="checkbox"/> Cat. I</p> <p><input type="checkbox"/> Cat. II</p> <p><input type="checkbox"/> Cat. III</p> <p><input checked="" type="checkbox"/> N/A</p>

Wetland name or number Wet E

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Silverado - Wetland E Date of site visit: 06/21/17

Rated by MK Trained by Ecology? Yes ☒ No ☐ Date of training 04/13

SEC: 29 TOWNSHIP: 24 RANGE: 06 Is S/T/R in Appendix D? Yes ☐ No ☒

Map of wetland unit: Figure _____ Estimated size 0.186 AC

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I ___ II ___ III ☒ IV ___

Category I = Score ≥ 70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions

6

Score for Hydrologic Functions

10

Score for Habitat Functions

16

TOTAL score for Functions

32

Category based on SPECIAL CHARACTERISTICS of wetland

I ___ II ___ Does not Apply ☒

Final Category (choose the “highest” category from above)

III

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		Depressional	
Natural Heritage Wetland		Riverine	
Bog		Lake-fringe	
Mature Forest		Slope	<input checked="" type="checkbox"/>
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above	<input checked="" type="checkbox"/>	Check if unit has multiple HGM classes present	<input type="checkbox"/>

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. <i>Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		✓
SP2. <i>Has the wetland unit been documented as habitat for any State listed Threatened or Endangered animal species?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		✓
SP3. <i>Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?</i>		✓
SP4. <i>Does the wetland unit have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		✓

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?

☒ NO – go to 2 ☐ YES – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? ☒ YES – **Freshwater Tidal Fringe** ☐ NO – **Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term “Estuarine” wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it.

Groundwater and surface water runoff are NOT sources of water to the unit.

☒ NO – go to 3 ☐ YES – The wetland class is **Flats**

If your wetland can be classified as a “Flats” wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

____ At least 30% of the open water area is deeper than 6.6 ft (2 m)?

☒ NO – go to 4 ☐ YES – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

☒ The wetland is on a slope (*slope can be very gradual*),

☒ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

☒ The water leaves the wetland **without being impounded**?

NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*

☐ NO - go to 5 ☒ YES – The wetland class is **Slope**

5. Does the entire wetland unit **meet all** of the following criteria?

_____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

_____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

☐ NO - go to 6 ☐ YES - The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☐ YES - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ YES - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. **NOTE:** Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

<i>HGM Classes within the wetland unit being rated</i>		<i>HGM Class to Use in Rating</i>	
Slope + Riverine	<input type="checkbox"/>	Riverine	<input type="checkbox"/>
Slope + Depressional	<input type="checkbox"/>	Depressional	<input type="checkbox"/>
Slope + Lake-fringe	<input type="checkbox"/>	Lake-fringe	<input type="checkbox"/>
Depressional + Riverine along stream within boundary	<input type="checkbox"/>	Depressional	<input type="checkbox"/>
Depressional + Lake-fringe	<input type="checkbox"/>	Depressional	<input type="checkbox"/>
Salt Water Tidal Fringe and any other class of freshwater wetland	<input type="checkbox"/>	Treat as ESTUARINE under wetlands with special characteristics	<input type="checkbox"/>

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

S Slope Wetlands WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality		Points (only 1 score per box)
S	S 1. Does the wetland unit have the <u>potential</u> to improve water quality?	(see p.64)
S	S 1.1 Characteristics of average slope of unit: <input type="checkbox"/> Slope is 1% or less (<i>a 1% slope has a 1 foot vertical drop in elevation for every 100 ft horizontal distance</i>) points = 3 <input type="checkbox"/> Slope is 1% - 2% points = 2 <input type="checkbox"/> Slope is 2% - 5% points = 1 <input checked="" type="checkbox"/> Slope is greater than 5% points = 0	0
S	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (<i>use NRCS definitions</i>) <input type="checkbox"/> YES = 3 points <input checked="" type="checkbox"/> NO = 0 points	0
S	S 1.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the vegetation in the wetland. Dense vegetation means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 inches. <input type="checkbox"/> Dense, uncut, herbaceous vegetation > 90% of the wetland area points = 6 <input checked="" type="checkbox"/> Dense, uncut, herbaceous vegetation > 1/2 of area points = 3 <input type="checkbox"/> Dense, woody, vegetation > 1/2 of area points = 2 <input type="checkbox"/> Dense, uncut, herbaceous vegetation > 1/4 of area points = 1 <input type="checkbox"/> Does not meet any of the criteria above for vegetation points = 0 Aerial photo or map with vegetation polygons	Figure ____ 3
S	Total for S 1 Add the points in the boxes above	3
S	S 2. Does the wetland unit have the <u>opportunity</u> to improve water quality? Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity. <input type="checkbox"/> Grazing in the wetland or within 150ft <input type="checkbox"/> Untreated stormwater discharges to wetland <input type="checkbox"/> Tilled fields, logging, or orchards within 150 feet of wetland <input checked="" type="checkbox"/> Residential, urban areas, or golf courses are within 150 ft upslope of wetland <input type="checkbox"/> Other _____ <input checked="" type="checkbox"/> YES multiplier is 2 <input type="checkbox"/> NO multiplier is 1	(see p.67) multiplier 2
S	TOTAL - Water Quality Functions Multiply the score from S1 by S2 Add score to table on p. 1	6

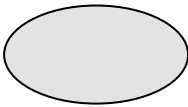
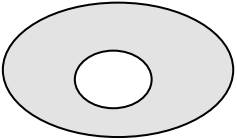
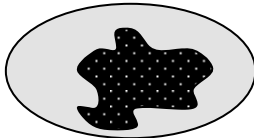
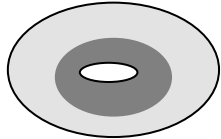
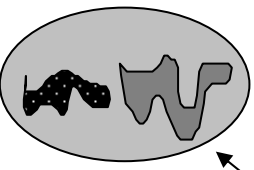
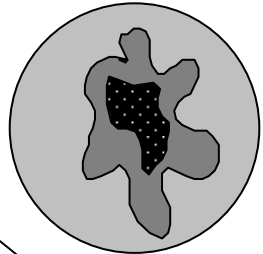
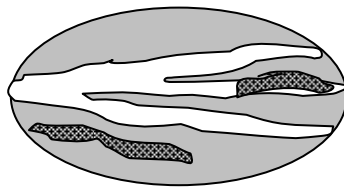
Comments

S	Slope Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream erosion	Points (only 1 score per box)
S	S 3. Does the wetland unit have the <u>potential</u> to reduce flooding and stream erosion?	(see p.68)
S	<p>S 3.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. Choose the points appropriate for the description that best fit conditions in the wetland. (stems of plants should be thick enough (usually > 1/8in), or dense enough, to remain erect during surface flows)</p> <p><input type="checkbox"/> Dense, uncut, rigid vegetation covers > 90% of the area of the wetland. points = 6</p> <p><input checked="" type="checkbox"/> Dense, uncut, rigid vegetation > 1/2 area of wetland points = 3</p> <p><input type="checkbox"/> Dense, uncut, rigid vegetation > 1/4 area points = 1</p> <p><input type="checkbox"/> More than 1/4 of area is grazed, mowed, tilled or vegetation is not rigid points = 0</p>	3
S	<p>S 3.2 Characteristics of slope wetland that holds back small amounts of flood flows: The slope wetland has small surface depressions that can retain water over at least 10% of its area.</p> <p><input checked="" type="checkbox"/> YES points = 2</p> <p><input type="checkbox"/> NO points = 0</p>	2
S	<i>Add the points in the boxes above</i>	5
S	<p>S 4. Does the wetland have the <u>opportunity</u> to reduce flooding and erosion?</p> <p>Is the wetland in a landscape position where the reduction in water velocity it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows? Note which of the following conditions apply.</p> <p><input checked="" type="checkbox"/> Wetland has surface runoff that drains to a river or stream that has flooding problems</p> <p><input type="checkbox"/> Other _____</p> <p>(Answer NO if the major source of water is controlled by a reservoir (e.g. wetland is a seep that is on the downstream side of a dam))</p> <p><input checked="" type="checkbox"/> YES multiplier is 2 <input type="checkbox"/> NO multiplier is 1</p>	(see p. 70) multiplier <u>2</u>
S	<p>TOTAL - Hydrologic Functions Multiply the score from S 3 by S 4</p> <p><i>Add score to table on p. 1</i></p>	10

Comments

These questions apply to wetlands of all HGM classes.		Points (only 1 score per box)																								
HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat																										
H 1. Does the wetland unit have the <u>potential</u> to provide habitat for many species?																										
<p>H 1.1 Vegetation structure (see p. 72) Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.</p> <p> <input type="checkbox"/> Aquatic bed <input type="checkbox"/> Emergent plants <input type="checkbox"/> Scrub/shrub (areas where shrubs have >30% cover) <input checked="" type="checkbox"/> Forested (areas where trees have >30% cover) If the unit has a forested class check if: <input checked="" type="checkbox"/> The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon Add the number of vegetation structures that qualify. If you have:</p> <table border="0"> <tr> <td><input type="checkbox"/> 4 structures or more</td> <td>points = 4</td> </tr> <tr> <td><input type="checkbox"/> 3 structures</td> <td>points = 2</td> </tr> <tr> <td><input checked="" type="checkbox"/> 2 structures</td> <td>points = 1</td> </tr> <tr> <td><input type="checkbox"/> 1 structure</td> <td>points = 0</td> </tr> </table> <p>Map of Cowardin vegetation classes</p>		<input type="checkbox"/> 4 structures or more	points = 4	<input type="checkbox"/> 3 structures	points = 2	<input checked="" type="checkbox"/> 2 structures	points = 1	<input type="checkbox"/> 1 structure	points = 0	<p>Figure _____</p> <p>1</p>																
<input type="checkbox"/> 4 structures or more	points = 4																									
<input type="checkbox"/> 3 structures	points = 2																									
<input checked="" type="checkbox"/> 2 structures	points = 1																									
<input type="checkbox"/> 1 structure	points = 0																									
<p>H 1.2. Hydroperiods (see p. 73) Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)</p> <table border="0"> <tr> <td><input type="checkbox"/> Permanently flooded or inundated</td> <td><input type="checkbox"/> 4 or more types present</td> <td>points = 3</td> </tr> <tr> <td><input type="checkbox"/> Seasonally flooded or inundated</td> <td><input type="checkbox"/> 3 types present</td> <td>points = 2</td> </tr> <tr> <td><input type="checkbox"/> Occasionally flooded or inundated</td> <td><input type="checkbox"/> 2 types present</td> <td>point = 1</td> </tr> <tr> <td><input checked="" type="checkbox"/> Saturated only</td> <td><input checked="" type="checkbox"/> 1 type present</td> <td>points = 0</td> </tr> <tr> <td colspan="3"><input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland</td> </tr> <tr> <td colspan="3"><input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland</td> </tr> <tr> <td colspan="3"><input type="checkbox"/> Lake-fringe wetland = 2 points</td> </tr> <tr> <td colspan="3"><input type="checkbox"/> Freshwater tidal wetland = 2 points</td> </tr> </table> <p>Map of hydroperiods</p>		<input type="checkbox"/> Permanently flooded or inundated	<input type="checkbox"/> 4 or more types present	points = 3	<input type="checkbox"/> Seasonally flooded or inundated	<input type="checkbox"/> 3 types present	points = 2	<input type="checkbox"/> Occasionally flooded or inundated	<input type="checkbox"/> 2 types present	point = 1	<input checked="" type="checkbox"/> Saturated only	<input checked="" type="checkbox"/> 1 type present	points = 0	<input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland			<input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland			<input type="checkbox"/> Lake-fringe wetland = 2 points			<input type="checkbox"/> Freshwater tidal wetland = 2 points			<p>Figure _____</p> <p>0</p>
<input type="checkbox"/> Permanently flooded or inundated	<input type="checkbox"/> 4 or more types present	points = 3																								
<input type="checkbox"/> Seasonally flooded or inundated	<input type="checkbox"/> 3 types present	points = 2																								
<input type="checkbox"/> Occasionally flooded or inundated	<input type="checkbox"/> 2 types present	point = 1																								
<input checked="" type="checkbox"/> Saturated only	<input checked="" type="checkbox"/> 1 type present	points = 0																								
<input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland																										
<input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland																										
<input type="checkbox"/> Lake-fringe wetland = 2 points																										
<input type="checkbox"/> Freshwater tidal wetland = 2 points																										
<p>H 1.3. Richness of Plant Species (see p. 75) Count the number of plant species in the wetland that cover at least 10 ft². (different patches of the same species can be combined to meet the size threshold) You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle</p> <p>If you counted:</p> <table border="0"> <tr> <td><input type="checkbox"/> > 19 species</td> <td>points = 2</td> </tr> <tr> <td><input checked="" type="checkbox"/> 5 - 19 species</td> <td>points = 1</td> </tr> <tr> <td><input type="checkbox"/> < 5 species</td> <td>points = 0</td> </tr> </table> <p>List species below if you want to:</p>		<input type="checkbox"/> > 19 species	points = 2	<input checked="" type="checkbox"/> 5 - 19 species	points = 1	<input type="checkbox"/> < 5 species	points = 0	<p>1</p>																		
<input type="checkbox"/> > 19 species	points = 2																									
<input checked="" type="checkbox"/> 5 - 19 species	points = 1																									
<input type="checkbox"/> < 5 species	points = 0																									

Total for page 2

<p>H 1.4. Interspersion of habitats (<i>see p. 76</i>)</p> <p>Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p><input checked="" type="checkbox"/> None = 0 points</p> </div> <div style="text-align: center;">  <p><input type="checkbox"/> Low = 1 point</p> </div> <div style="text-align: center;">  <p><input type="checkbox"/> Moderate = 2 points</p> </div> <div style="text-align: center;">  </div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-end; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  <p><input type="checkbox"/> High = 3 points</p> </div> <div style="text-align: center;">  <p>[riparian braided channels]</p> </div> </div> <p>NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". Use map of Cowardin vegetation classes</p>	<p>Figure _____</p> <p>0</p>
<p>H 1.5. Special Habitat Features: (<i>see p. 77</i>)</p> <p>Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long). <input checked="" type="checkbox"/> Standing snags (diameter at the bottom > 4 inches) in the wetland <input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m) <input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present (<i>cut shrubs or trees that have not yet turned grey/brown</i>) <input type="checkbox"/> At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. (<i>structures for egg-laying by amphibians</i>) <input checked="" type="checkbox"/> Invasive plants cover less than 25% of the wetland area in each stratum of plants <p>NOTE: The 20% stated in early printings of the manual on page 78 is an error.</p>	<p>3</p>
<p>H 1. TOTAL Score - potential for providing habitat</p> <p>Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5</p>	<p>5</p>

Comments

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
<p>H 2.1 Buffers (<i>see p. 80</i>) <i>Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."</i></p> <p><input type="checkbox"/> 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) Points = 5</p> <p><input checked="" type="checkbox"/> 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. Points = 4</p> <p><input type="checkbox"/> 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. Points = 4</p> <p><input type="checkbox"/> 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . Points = 3</p> <p><input type="checkbox"/> 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. Points = 3</p> <p>If buffer does not meet any of the criteria above</p> <p><input type="checkbox"/> No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. Points = 2</p> <p><input type="checkbox"/> No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. Points = 2</p> <p><input type="checkbox"/> Heavy grazing in buffer. Points = 1</p> <p><input type="checkbox"/> Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) Points = 0.</p> <p><input type="checkbox"/> Buffer does not meet any of the criteria above. Points = 1</p> <p style="text-align: center;">Aerial photo showing buffers</p>	<p>Figure _____</p> <p style="text-align: center; font-size: 2em;">4</p>
<p>H 2.2 Corridors and Connections (<i>see p. 81</i>)</p> <p>H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (<i>dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor</i>).</p> <p><input type="checkbox"/> YES = 4 points (<i>go to H 2.3</i>) <input checked="" type="checkbox"/> NO = go to H 2.2.2</p> <p>H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? OR a Lake-fringe wetland, if it does not have an undisturbed corridor as in the question above?</p> <p><input type="checkbox"/> YES = 2 points (<i>go to H 2.3</i>) <input checked="" type="checkbox"/> NO = H 2.2.3</p> <p>H 2.2.3 Is the wetland:</p> <p><input type="checkbox"/> within 5 mi (8km) of a brackish or salt water estuary OR</p> <p><input type="checkbox"/> within 3 mi of a large field or pasture (>40 acres) OR</p> <p><input type="checkbox"/> within 1 mi of a lake greater than 20 acres?</p> <p><input type="checkbox"/> YES = 1 point <input checked="" type="checkbox"/> NO = 0 points</p>	<p style="text-align: center; font-size: 2em;">0</p>

Total for page 4

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report <http://wdfw.wa.gov/hab/phslist.htm>)

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

- ☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).
- ☐ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).
- ☐ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- ☒ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.
- ☐ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).
- ☒ **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).
- ☒ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A*).
- ☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.
- ☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☒ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.
- ☒ If wetland has **3 or more** priority habitats = **4 points**
- ☐ If wetland has **2** priority habitats = **3 points**
- ☐ If wetland has **1** priority habitat = **1 point** ☐ No habitats = 0 points
- Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)*

4

<p>H 2.4 Wetland Landscape (<i>choose the one description of the landscape around the wetland that best fits</i>) (<i>see p. 84</i>)</p> <p><input type="checkbox"/> There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5</p> <p><input checked="" type="checkbox"/> There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3</p> <p><input type="checkbox"/> There is at least 1 wetland within ½ mile. points = 2</p> <p><input type="checkbox"/> There are no wetlands within ½ mile. points = 0</p>	3
<p>H 2. TOTAL Score - opportunity for providing habitat <i>Add the scores from H2.1, H2.2, H2.3, H2.4</i></p>	11
<p>TOTAL for H 1 from page 14</p>	5
<p>Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1</p>	16

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

Wetland Type <i>Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.</i>	Category
SC 1.0 Estuarine wetlands (see p. 86) Does the wetland unit meet the following criteria for Estuarine wetlands? <input type="checkbox"/> The dominant water regime is tidal, <input type="checkbox"/> Vegetated, and <input type="checkbox"/> With a salinity greater than 0.5 ppt. <input type="checkbox"/> YES = Go to SC 1.1 NO <input checked="" type="checkbox"/> =Go to SC 2.0	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? <input type="checkbox"/> YES = Category I <input type="checkbox"/> NO go to SC 1.2	Cat. I <input type="checkbox"/>
SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? <input type="checkbox"/> YES = Category I <input type="checkbox"/> NO = Category II <input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native <i>Spartina</i> spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of <i>Spartina</i> would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of <i>Spartina</i> in determining the size threshold of 1 acre. <input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. <input type="checkbox"/> The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	<input type="checkbox"/> Cat. I <input type="checkbox"/> Cat. II <input type="checkbox"/> Dual rating I/II

<p>SC 2.0 Natural Heritage Wetlands (<i>see p. 87</i>) Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.</p> <p>SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? (<i>this question is used to screen out most sites before you need to contact WNHP/DNR</i>) S/T/R information from Appendix D <input checked="" type="checkbox"/> or accessed from WNHP/DNR web site <input type="checkbox"/></p> <p>YES <input type="checkbox"/> – contact WNHP/DNR (see p. 79) and go to SC 2.2 NO <input checked="" type="checkbox"/></p> <p>SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species? <input type="checkbox"/> YES = Category I NO <input checked="" type="checkbox"/> not a Heritage Wetland</p>	<input type="checkbox"/> Cat. I
<p>SC 3.0 Bogs (<i>see p. 87</i>) Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below to identify if the wetland is a bog. If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p>1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)? Yes - go to Q. 3 <input type="checkbox"/> <input checked="" type="checkbox"/> No - go to Q. 2</p> <p>2. Does the unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? <input type="checkbox"/> Yes - go to Q. 3 <input checked="" type="checkbox"/> No - Is not a bog for purpose of rating</p> <p>3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the “bog” species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? <input type="checkbox"/> Yes – Is a bog for purpose of rating <input type="checkbox"/> No - go to Q. 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16” deep. If the pH is less than 5.0 and the “bog” plant species in Table 3 are present, the wetland is a bog.</p> <p>1. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann’s spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (> 30% coverage of the total shrub/herbaceous cover)?</p> <p>2. <input type="checkbox"/> YES = Category I No <input type="checkbox"/> Is not a bog for purpose of rating</p>	<input type="checkbox"/> Cat. I

<p>SC 4.0 Forested Wetlands (see p. 90)</p> <p>Does the wetland unit have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? <i>If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> Old-growth forests: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more.</p> <p>NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter.</p> <p><input type="checkbox"/> Mature forests: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have average diameters (dbh) exceeding 21 inches (53cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth.</p> <p><input type="checkbox"/> YES = Category I NO <input checked="" type="checkbox"/> not a forested wetland with special characteristics</p>	<p>Cat. I <input type="checkbox"/></p>
<p>SC 5.0 Wetlands in Coastal Lagoons (see p. 91)</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <p><input type="checkbox"/> The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks</p> <p><input type="checkbox"/> The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</p> <p><input type="checkbox"/> YES = Go to SC 5.1 NO <input checked="" type="checkbox"/> not a wetland in a coastal lagoon</p> <p>SC 5.1 Does the wetland meets all of the following three conditions?</p> <p><input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).</p> <p><input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.</p> <p><input type="checkbox"/> The wetland is larger than 1/10 acre (4350 square feet)</p> <p><input type="checkbox"/> YES = Category I <input type="checkbox"/> NO = Category II</p>	<p><input type="checkbox"/> Cat. I</p> <p><input type="checkbox"/> Cat. II</p>

SC 6.0 Interdunal Wetlands (*see p. 93*)

Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?

☐ YES - go to SC 6.1 NO ☒ not an interdunal wetland for rating

If you answer yes you will still need to rate the wetland based on its functions.

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula- lands west of SR 103

☐ Grayland-Westport- lands west of SR 105

☐ Ocean Shores-Copalis- lands west of SR 115 and SR 109

SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is once acre or larger?

☐ YES = Category II

☐ NO – go to SC 6.2

SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?

☐ YES = Category III

Cat. II ☐

Cat. III ☐

Category of wetland based on Special Characteristics

Choose the “highest” rating if wetland falls into several categories, and record on p. 1.

If you answered NO for all types enter “Not Applicable” on p.1

☐ Cat. I
☐ Cat. II
☐ Cat. III
☒ N/A

Wetland name or number Wetland F

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users

Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Silverado - Wetland F Date of site visit: 06/21/2017

Rated by MK Trained by Ecology? Yes ☒ No ☐ Date of training 04/13

SEC: 29 TOWNSHIP: 24 RANGE: 6E Is S/T/R in Appendix D? Yes ☐ No ☒

Map of wetland unit: Figure Estimated size 0.375 AC

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I ☐ II ☒ III ☐ IV ☐

Category I = Score ≥ 70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions

18

Score for Hydrologic Functions

16

Score for Habitat Functions

19

TOTAL score for Functions

53

Category based on SPECIAL CHARACTERISTICS of wetland

I ☐ II ☐ Does not Apply ☐

Final Category (choose the “highest” category from above)

II

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics	Wetland HGM Class used for Rating	
Estuarine	Depressional	
Natural Heritage Wetland	Riverine	
Bog	Lake-fringe	
Mature Forest	Slope	
Old Growth Forest	Flats	
Coastal Lagoon	Freshwater Tidal	
Interdunal		
None of the above	Check if unit has multiple HGM classes present	<input type="checkbox"/>

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. <i>Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered animal or plant species (T/E species)?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		✓
SP2. <i>Has the wetland unit been documented as habitat for any State listed Threatened or Endangered animal species?</i> For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		✓
SP3. <i>Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?</i>		✓
SP4. <i>Does the wetland unit have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		✓

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?

☒ NO – go to 2 ☐ YES – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? ☐ YES – **Freshwater Tidal Fringe** ☐ NO – **Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term “Estuarine” wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it.

Groundwater and surface water runoff are NOT sources of water to the unit.

☒ NO – go to 3 ☐ YES – The wetland class is **Flats**

If your wetland can be classified as a “Flats” wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

____ The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

____ At least 30% of the open water area is deeper than 6.6 ft (2 m)?

☒ NO – go to 4 ☐ YES – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

____ The wetland is on a slope (*slope can be very gradual*),

____ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

____ The water leaves the wetland **without being impounded**?

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).

☒ NO - go to 5 ☐ YES – The wetland class is **Slope**

5. Does the entire wetland unit **meet all** of the following criteria?

_____ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river

_____ The overbank flooding occurs at least once every two years.

NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.

☒ NO - go to 6 ☐ YES – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO – go to 7 ☒ YES – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO – go to 8 ☐ YES – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. **NOTE:** Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

<i>HGM Classes within the wetland unit being rated</i>		<i>HGM Class to Use in Rating</i>	
Slope + Riverine	<input type="checkbox"/>	Riverine	<input type="checkbox"/>
Slope + Depressional	<input type="checkbox"/>	Depressional	<input type="checkbox"/>
Slope + Lake-fringe	<input type="checkbox"/>	Lake-fringe	<input type="checkbox"/>
Depressional + Riverine along stream within boundary	<input type="checkbox"/>	Depressional	<input type="checkbox"/>
Depressional + Lake-fringe	<input type="checkbox"/>	Depressional	<input type="checkbox"/>
Salt Water Tidal Fringe and any other class of freshwater wetland	<input type="checkbox"/>	Treat as ESTUARINE under wetlands with special characteristics	<input type="checkbox"/>

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

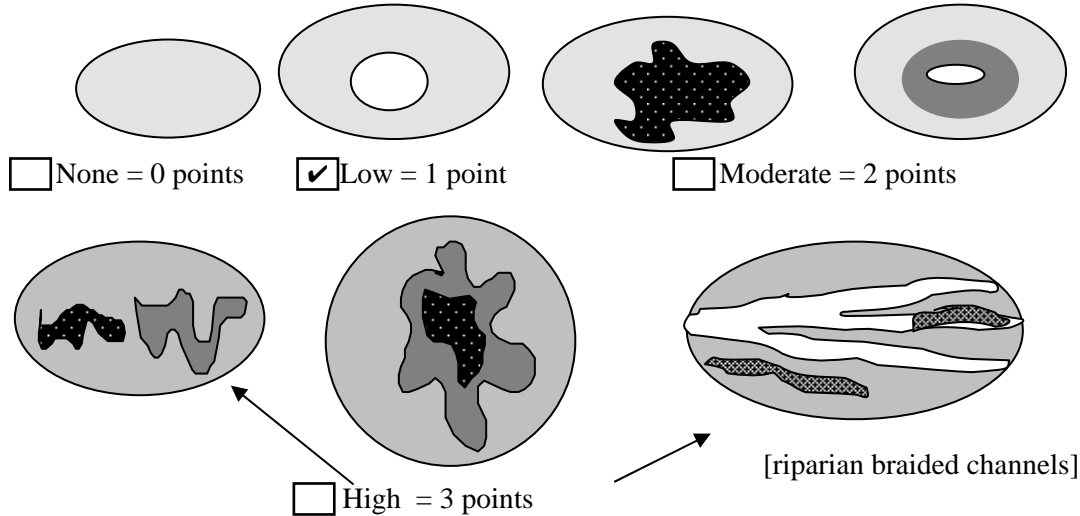
D Depressional and Flats Wetlands		Points
WATER QUALITY FUNCTIONS - Indicators that the wetland unit functions to improve water quality		(only 1 score per box)
D	D 1. Does the wetland unit have the <u>potential</u> to improve water quality?	(see p.38)
D	D 1.1 Characteristics of surface water flows out of the wetland: <input type="checkbox"/> Unit is a depression with no surface water leaving it (no outlet) points = 3 <input checked="" type="checkbox"/> Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 <input type="checkbox"/> Unit has an unconstricted, or slightly constricted, surface outlet (<i>permanently flowing</i>) points = 1 <input type="checkbox"/> Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1 <i>(If ditch is not permanently flowing treat unit as "intermittently flowing")</i> Provide photo or drawing	Figure ____ 2
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic (<i>use NRCS definitions</i>) <input type="checkbox"/> YES points = 4 <input checked="" type="checkbox"/> NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) <input checked="" type="checkbox"/> Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 <input type="checkbox"/> Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 <input type="checkbox"/> Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 <input type="checkbox"/> Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	Figure ____ 5
D	D1.4 Characteristics of seasonal ponding or inundation. <i>This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.</i> <input type="checkbox"/> Area seasonally ponded is > ½ total area of wetland points = 4 <input checked="" type="checkbox"/> Area seasonally ponded is > ¼ total area of wetland points = 2 <input type="checkbox"/> Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods	Figure ____ 2
D	Total for D 1 <i>Add the points in the boxes above</i>	9
D	D 2. Does the wetland unit have the <u>opportunity</u> to improve water quality? Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. <i>Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.</i> <input type="checkbox"/> Grazing in the wetland or within 150 ft <input type="checkbox"/> Untreated stormwater discharges to wetland <input type="checkbox"/> Tilled fields or orchards within 150 ft of wetland <input type="checkbox"/> A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging <input checked="" type="checkbox"/> Residential, urban areas, golf courses are within 150 ft of wetland <input type="checkbox"/> Wetland is fed by groundwater high in phosphorus or nitrogen <input type="checkbox"/> Other _____ <input checked="" type="checkbox"/> YES multiplier is 2 <input type="checkbox"/> NO multiplier is 1	(see p. 44) multiplier 2
D	TOTAL - Water Quality Functions Multiply the score from D1 by D2 <i>Add score to table on p. 1</i>	18

D Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation		Points (only 1 score per box)
	D 3. Does the wetland unit have the <u>potential</u> to reduce flooding and erosion?	(see p.46)
D	D 3.1 Characteristics of surface water flows out of the wetland unit <input type="checkbox"/> Unit is a depression with no surface water leaving it (no outlet) points = 4 <input checked="" type="checkbox"/> Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 <input type="checkbox"/> Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1 <i>(If ditch is not permanently flowing treat unit as "intermittently flowing")</i> <input type="checkbox"/> Unit has an unconstricted, or slightly constricted, surface outlet (<i>permanently flowing</i>) points = 0	2
D	D 3.2 Depth of storage during wet periods <i>Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).</i> <input type="checkbox"/> Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 <input type="checkbox"/> The wetland is a "headwater" wetland points = 5 <input type="checkbox"/> Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 <input checked="" type="checkbox"/> Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 <input type="checkbox"/> Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 <input type="checkbox"/> Marks of ponding less than 0.5 ft points = 0	3
D	D 3.3 Contribution of wetland unit to storage in the watershed <i>Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.</i> <input type="checkbox"/> The area of the basin is less than 10 times the area of unit points = 5 <input checked="" type="checkbox"/> The area of the basin is 10 to 100 times the area of the unit points = 3 <input type="checkbox"/> The area of the basin is more than 100 times the area of the unit points = 0 <input type="checkbox"/> Entire unit is in the FLATS class points = 5	3
D	Total for D 3 <i>Add the points in the boxes above</i>	8
D	D 4. Does the wetland unit have the <u>opportunity</u> to reduce flooding and erosion? Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. <i>Note which of the following indicators of opportunity apply.</i> <input type="checkbox"/> Wetland is in a headwater of a river or stream that has flooding problems <input checked="" type="checkbox"/> Wetland drains to a river or stream that has flooding problems <input type="checkbox"/> Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems <input type="checkbox"/> Other _____ <input checked="" type="checkbox"/> YES multiplier is 2 <input type="checkbox"/> NO multiplier is 1	(see p. 49) multiplier 2
D	TOTAL - Hydrologic Functions Multiply the score from D 3 by D 4 <i>Add score to table on p. 1</i>	16

These questions apply to wetlands of all HGM classes. HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat		Points (only 1 score per box)
H 1. Does the wetland unit have the <u>potential</u> to provide habitat for many species?		
H 1.1 <u>Vegetation structure</u> (see p. 72) Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is 1/4 acre or more than 10% of the area if unit is smaller than 2.5 acres. <div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> Aquatic bed <input type="checkbox"/> Emergent plants <input type="checkbox"/> Scrub/shrub (areas where shrubs have >30% cover) <input checked="" type="checkbox"/> Forested (areas where trees have >30% cover) If the unit has a forested class check if: <input checked="" type="checkbox"/> The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon Add the number of vegetation structures that qualify. If you have: </div> <div> <input type="checkbox"/> 4 structures or more points = 4 <input type="checkbox"/> 3 structures points = 2 <input checked="" type="checkbox"/> 2 structures points = 1 <input type="checkbox"/> 1 structure points = 0 </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div>Map of Cowardin vegetation classes</div> <div>Map of hydroperiods</div> </div>		Figure 1
H 1.2. <u>Hydroperiods</u> (see p. 73) Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count. (see text for descriptions of hydroperiods) <div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> Permanently flooded or inundated <input checked="" type="checkbox"/> Seasonally flooded or inundated <input type="checkbox"/> Occasionally flooded or inundated <input checked="" type="checkbox"/> Saturated only <input checked="" type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland <input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland <input type="checkbox"/> Lake-fringe wetland = 2 points <input type="checkbox"/> Freshwater tidal wetland = 2 points </div> <div> <input type="checkbox"/> 4 or more types present points = 3 <input checked="" type="checkbox"/> 3 types present points = 2 <input type="checkbox"/> 2 types present point = 1 <input type="checkbox"/> 1 type present points = 0 </div> </div>		Figure 2
H 1.3. <u>Richness of Plant Species</u> (see p. 75) Count the number of plant species in the wetland that cover at least 10 ft ² . (different patches of the same species can be combined to meet the size threshold) You do not have to name the species. Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle If you counted: <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div> List species below if you want to: </div> <div> <input type="checkbox"/> > 19 species points = 2 <input checked="" type="checkbox"/> 5 - 19 species points = 1 <input type="checkbox"/> < 5 species points = 0 </div> </div>		Figure 1

H 1.4. Interspersion of habitats (see p. 76)

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

Figure

1

H 1.5. Special Habitat Features: (see p. 77)

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

- ☒ Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).
- ☒ Standing snags (diameter at the bottom > 4 inches) in the wetland
- ☒ Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)
- ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet turned grey/brown*)
- ☐ At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. (*structures for egg-laying by amphibians*)
- ☐ Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

3

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

8

Comments

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
<p>H 2.1 Buffers (<i>see p. 80</i>) Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."</p> <p><input type="checkbox"/> 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) Points = 5</p> <p><input checked="" type="checkbox"/> 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. Points = 4</p> <p><input type="checkbox"/> 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. Points = 4</p> <p><input type="checkbox"/> 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . Points = 3</p> <p><input type="checkbox"/> 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. Points = 3</p> <p>If buffer does not meet any of the criteria above</p> <p><input type="checkbox"/> No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. Points = 2</p> <p><input type="checkbox"/> No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. Points = 2</p> <p><input type="checkbox"/> Heavy grazing in buffer. Points = 1</p> <p><input type="checkbox"/> Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland) Points = 0.</p> <p><input type="checkbox"/> Buffer does not meet any of the criteria above. Points = 1</p> <p style="text-align: center;">Aerial photo showing buffers</p>	<p>Figure _____</p> <p style="text-align: center; font-size: 2em;">4</p>
<p>H 2.2 Corridors and Connections (<i>see p. 81</i>)</p> <p>H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (<i>dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor</i>).</p> <p><input type="checkbox"/> YES = 4 points (<i>go to H 2.3</i>) <input checked="" type="checkbox"/> NO = go to H 2.2.2</p> <p>H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? OR a Lake-fringe wetland, if it does not have an undisturbed corridor as in the question above?</p> <p><input type="checkbox"/> YES = 2 points (<i>go to H 2.3</i>) <input checked="" type="checkbox"/> NO = H 2.2.3</p> <p>H 2.2.3 Is the wetland:</p> <p><input type="checkbox"/> within 5 mi (8km) of a brackish or salt water estuary OR</p> <p><input type="checkbox"/> within 3 mi of a large field or pasture (>40 acres) OR</p> <p><input type="checkbox"/> within 1 mi of a lake greater than 20 acres?</p> <p><input type="checkbox"/> YES = 1 point <input checked="" type="checkbox"/> NO = 0 points</p>	<p style="text-align: center; font-size: 2em;">0</p>

Total for page 4

H 2.3 Near or adjacent to other priority habitats listed by WDFW (see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report <http://wdfw.wa.gov/hab/phslist.htm>)

Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.*

- ☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre).
- ☐ **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*).
- ☐ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- ☒ **Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.
- ☐ **Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*).
- ☒ **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*).
- ☒ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☐ **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A*).
- ☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft.
- ☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☒ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long.
- ☒ If wetland has **3 or more** priority habitats = **4 points**
- ☐ If wetland has **2** priority habitats = **3 points**
- ☐ If wetland has **1** priority habitat = **1 point** ☐ No habitats = 0 points
- Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)*

4

<p>H 2.4 Wetland Landscape (<i>choose the one description of the landscape around the wetland that best fits</i>) (<i>see p. 84</i>)</p> <p><input type="checkbox"/> There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5</p> <p><input checked="" type="checkbox"/> There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3</p> <p><input type="checkbox"/> The wetland is Lake-fringe on a lake with disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3</p> <p><input type="checkbox"/> There is at least 1 wetland within ½ mile. points = 2</p> <p><input type="checkbox"/> There are no wetlands within ½ mile. points = 0</p>	3
<p>H 2. TOTAL Score - opportunity for providing habitat <i>Add the scores from H2.1, H2.2, H2.3, H2.4</i></p>	11
<p>TOTAL for H 1 from page 14</p>	8
<p>Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1</p>	19

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

Wetland Type <i>Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.</i>	Category
SC 1.0 Estuarine wetlands (see p. 86) Does the wetland unit meet the following criteria for Estuarine wetlands? <input type="checkbox"/> The dominant water regime is tidal, <input type="checkbox"/> Vegetated, and <input type="checkbox"/> With a salinity greater than 0.5 ppt. <input type="checkbox"/> YES = Go to SC 1.1 NO <input checked="" type="checkbox"/> =Go to SC 2.0	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? <input type="checkbox"/> YES = Category I <input type="checkbox"/> NO go to SC 1.2	Cat. I <input type="checkbox"/>
SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? <input type="checkbox"/> YES = Category I <input type="checkbox"/> NO = Category II <input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native <i>Spartina</i> spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of <i>Spartina</i> would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of <i>Spartina</i> in determining the size threshold of 1 acre. <input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. <input type="checkbox"/> The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	<input type="checkbox"/> Cat. I <input type="checkbox"/> Cat. II <input type="checkbox"/> Dual rating I/II

<p>SC 2.0 Natural Heritage Wetlands (<i>see p. 87</i>) Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.</p> <p>SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? (<i>this question is used to screen out most sites before you need to contact WNHP/DNR</i>) S/T/R information from Appendix D <input checked="" type="checkbox"/> or accessed from WNHP/DNR web site <input type="checkbox"/></p> <p>YES <input type="checkbox"/> – contact WNHP/DNR (see p. 79) and go to SC 2.2 NO <input checked="" type="checkbox"/></p> <p>SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species? <input type="checkbox"/> YES = Category I NO <input checked="" type="checkbox"/> not a Heritage Wetland</p>	<input type="checkbox"/> Cat. I
<p>SC 3.0 Bogs (<i>see p. 87</i>) Does the wetland unit (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below to identify if the wetland is a bog. If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p>1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)? Yes - go to Q. 3 <input type="checkbox"/> <input checked="" type="checkbox"/> No - go to Q. 2</p> <p>2. Does the unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond? <input type="checkbox"/> Yes - go to Q. 3 <input checked="" type="checkbox"/> No - Is not a bog for purpose of rating</p> <p>3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the “bog” species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)? <input type="checkbox"/> Yes – Is a bog for purpose of rating <input type="checkbox"/> No - go to Q. 4 NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16” deep. If the pH is less than 5.0 and the “bog” plant species in Table 3 are present, the wetland is a bog.</p> <p>1. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann’s spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (> 30% coverage of the total shrub/herbaceous cover)?</p> <p>2. <input type="checkbox"/> YES = Category I No <input checked="" type="checkbox"/> Is not a bog for purpose of rating</p>	<input type="checkbox"/> Cat. I

<p>SC 4.0 Forested Wetlands (see p. 90)</p> <p>Does the wetland unit have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? <i>If you answer yes you will still need to rate the wetland based on its functions.</i></p> <p><input type="checkbox"/> Old-growth forests: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more.</p> <p>NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter.</p> <p><input type="checkbox"/> Mature forests: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have average diameters (dbh) exceeding 21 inches (53cm); crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth.</p> <p><input type="checkbox"/> YES = Category I NO <input checked="" type="checkbox"/> not a forested wetland with special characteristics</p>	<p>Cat. I <input type="checkbox"/></p>
<p>SC 5.0 Wetlands in Coastal Lagoons (see p. 91)</p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <p><input type="checkbox"/> The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks</p> <p><input type="checkbox"/> The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</p> <p><input type="checkbox"/> YES = Go to SC 5.1 NO <input checked="" type="checkbox"/> not a wetland in a coastal lagoon</p> <p>SC 5.1 Does the wetland meets all of the following three conditions?</p> <p><input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).</p> <p><input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.</p> <p><input type="checkbox"/> The wetland is larger than 1/10 acre (4350 square feet)</p> <p><input type="checkbox"/> YES = Category I <input type="checkbox"/> NO = Category II</p>	<p><input type="checkbox"/> Cat. I</p> <p><input type="checkbox"/> Cat. II</p>

SC 6.0 Interdunal Wetlands (*see p. 93*)

Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?

☐ YES - go to SC 6.1 NO ☒ not an interdunal wetland for rating

If you answer yes you will still need to rate the wetland based on its functions.

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula- lands west of SR 103

☐ Grayland-Westport- lands west of SR 105

☐ Ocean Shores-Copalis- lands west of SR 115 and SR 109

SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is once acre or larger?

☐ YES = Category II

☐ NO – go to SC 6.2

SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?

☐ YES = Category III

Cat. II ☐

Cat. III ☐

Category of wetland based on Special Characteristics

Choose the “highest” rating if wetland falls into several categories, and record on p. 1.

If you answered NO for all types enter “Not Applicable” on p.1

☐ Cat. I
☐ Cat. II
☐ Cat. III
☒ N/A

APPENDIX C

KING COUNTY BOND QUANTITY WORKSHEET

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King County

**Critical Areas Mitigation
Bond Quantity Worksheet**

Burnstead - Tibbetts Creek Crossing

Date: 11-Jul-19 Prepared by: TA, MK

Project Number:

Project Description: Buffer Enhancement

Location: 7932 Renton-Issaquah Rd SE, Issaquah, WA

Applicant: Steve Burnstead
Construction, LLC

Phone: 425.454.1900

PLANT MATERIALS*					
Type	Unit Price	Unit	Quantity	Description	Cost
PLANTS: Potted, 4" diameter, medium	\$5.00	Each			\$ -
PLANTS: Container, 1 gallon, medium soil	\$11.50	Each	41.00		\$ 471.50
PLANTS: Container, 2 gallon, medium soil	\$20.00	Each			\$ -
PLANTS: Container, 5 gallon, medium soil	\$36.00	Each			\$ -
PLANTS: Seeding, by hand	\$0.50	SY			\$ -
PLANTS: Slips (willow, red-osier)	\$2.00	Each			\$ -
PLANTS: Stakes (willow)	\$2.00	Each			\$ -
PLANTS: Stakes (willow)	\$2.00	Each			\$ -
PLANTS: Flats/plugs	\$2.00	Each			\$ -
					\$ -
* All costs include installation					TOTAL \$ 471.50
INSTALLATION COSTS (LABOR, EQUIPMENT, & OVERHEAD)					
Type	Unit Price	Unit			Cost
Compost, vegetable, delivered and spread	\$37.88	CY			\$ -
Decompacting tillhardpan, medium, to 6" depth	\$1.57	CY			\$ -
Decompacting tillhardpan, medium, to 12" depth	\$1.57	CY			\$ -
Hydroseeding	\$0.51	SY			\$ -
Labor, general (landscaping)	\$40.00	HR	8.00		\$ 320.00
Labor, general (construction)	\$40.00	HR			\$ -
Labor: Consultant, supervising	\$55.00	HR			\$ -
Labor: Consultant, on-site re-design	\$95.00	HR			\$ -
Rental of decompacting machinery & operator	\$70.00	HR			\$ -
Sand, coarse builder's, delivered and spread	\$42.00	CY			\$ -
Staking material (set per tree)	\$7.00	Each			\$ -
Surveying, line & grade	\$250.00	HR			\$ -
Surveying, topographical	\$250.00	HR			\$ -
Watering, 1" of water, 50' soaker hose	\$3.62	MSF			\$ -
Irrigation - temporary	\$3,000.00	Acre	0.02		\$ 66.00
Irrigation - buried	\$4,500.00	Acre			\$ -
Tilling topsoil, disk harrow, 20hp tractor, 4'-6" deep	\$1.02	SY			\$ -
	\$25.00	HR			\$ -
					\$ -
TOTAL					\$ 386.00
HABITAT STRUCTURES*					
ITEMS	Unit Cost	Unit			Cost
Fascines (willow)	\$ 2.00	Each			\$ -
Logs (cedar), w/ root wads, 16"-24" diam., 30' long	\$1,000.00	Each			\$ -
Logs (cedar) w/o root wads, 16"-24" diam., 30'	\$400.00	Each			\$ -
Logs, w/o root wads, 16"-24" diam., 30' long	\$245.00	Each			\$ -
Logs w/ root wads, 16"-24" diam., 30' long	\$460.00	Each			\$ -
Rocks, one-man	\$60.00	Each			\$ -
Rocks, two-man	\$120.00	Each			\$ -
Rootwads	\$163.00	Each			\$ -
Spawning gravel, type A	\$22.00	CY			\$ -
Weir - log	\$1,500.00	Each			\$ -
Weir - adjustable	\$2,000.00	Each			\$ -
Woody debris, large	\$163.00	Each			\$ -
Snags - anchored	\$400.00	Each			\$ -
Snags - on site	\$50.00	Each			\$ -
Snags - imported	\$800.00	Each			\$ -
					\$ -
					\$ -
* All costs include delivery and installation					TOTAL \$ -
EROSION CONTROL					
ITEMS	Unit Cost	Unit			Cost
Backfill and Compaction-embankment	\$ 4.89	CY			\$ -
Crushed surfacing, 1 1/4" minus	\$30.00	CY			\$ -
Ditching	\$7.03	CY			\$ -
Excavation, bulk	\$4.00	CY			\$ -
Fence, silt	\$1.60	LF	2432.00		\$ 3,891.20
Jute Mesh	\$1.26	SY			\$ -
Mulch, by hand, straw, 2" deep	\$1.27	SY			\$ -
Mulch, by hand, wood chips, 2" deep	\$3.25	SY	10.00		\$ 32.50
Mulch, by machine, straw, 1" deep	\$0.32	SY			\$ -
Piping, temporary, CPP, 6"	\$9.30	LF			\$ -
Piping, temporary, CPP, 8"	\$14.00	LF			\$ -
Piping, temporary, CPP, 12"	\$18.00	LF			\$ -
Plastic covering, 6mm thick, sandbagged	\$2.00	SY			\$ -
Rip Rap, machine placed, slopes	\$33.98	CY			\$ -
Rock Constr. Entrance 100'x15'x1'	\$3,000.00	Each			\$ -
Rock Constr. Entrance 50'x15'x1'	\$1,500.00	Each			\$ -
Sediment pond riser assembly	\$1,695.11	Each			\$ -
Sediment trap, 5' high berm	\$15.57	LF			\$ -
Sediment trap, 5' high berm w/spillway incl. riprap	\$59.60	LF			\$ -
Sodding, 1" deep, level ground	\$5.24	SY			\$ -
Sodding, 1" deep, sloped ground	\$6.48	SY			\$ -
Straw bales, place and remove	\$600.00	TON			\$ -
Hauling and disposal	\$20.00	CY			\$ -
Topsoil, delivered and spread	\$35.73	CY			\$ -
	\$17.00	CY			\$ -
					\$ -
TOTAL					\$ 3,923.70

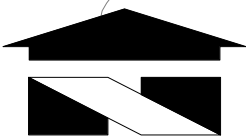
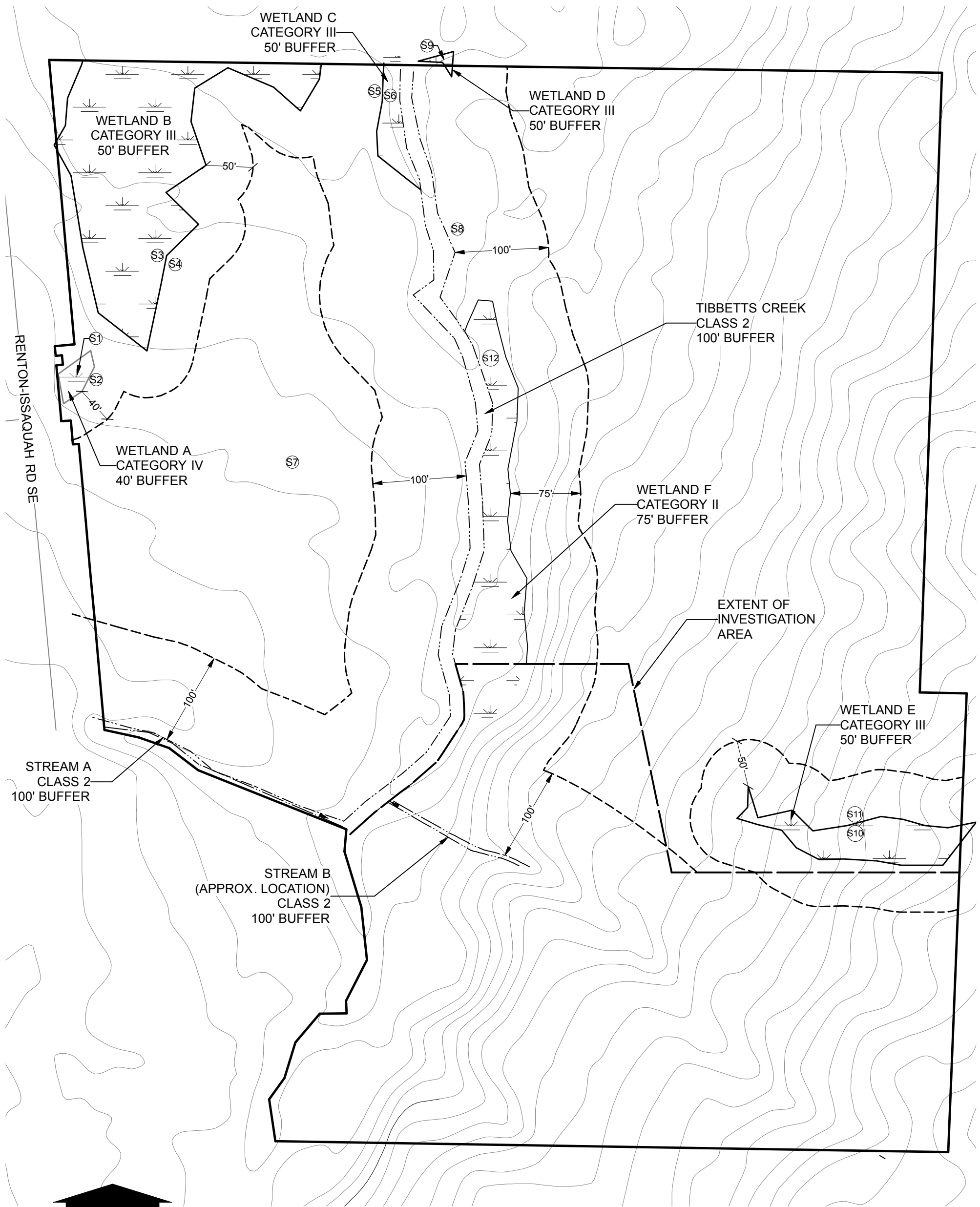
GENERAL ITEMS					
ITEMS	Unit Cost	Unit			Cost
Fencing, chain link, 6' high	\$18.89	LF			\$ -
Fencing, chain link, corner posts	\$111.17	Each			\$ -
Fencing, chain link, gate	\$277.63	Each			\$ -
Fencing, split rail, 3' high (2-rail)	\$10.54	LF	2432.00		\$ 25,633.28
Fencing, temporary (NGPE)	\$1.20	LF	2432.00		\$ 2,918.40
Signs, sensitive area boundary (inc. backing, post, install)	\$28.50	Each	20.00		\$ 570.00
					\$ -
					\$ -
					\$ -
				TOTAL	\$ 29,121.68
OTHER			<i>(Construction Cost Subtotal)</i> \$ 33,902.88		
ITEMS	Percentage of Construction Cost	Unit			Cost
Mobilization	10%	1			\$ 3,390.29
Contingency	30%	1			\$ 10,170.86
				TOTAL	\$ 13,561.15
MAINTENANCE AND MONITORING NOTE: Projects with multiple permit requirements may be required to have longer monitoring and maintenance terms. This will be evaluated on a case-by-case basis for development applications. Monitoring and maintenance ranges may be assessed anywhere from 5 to 10 years.					
Maintenance, annual					
Less than 1,000 sq.ft. and buffer mitigation only	\$ 1.08	SF	955.00	(3 X SF total for 3 annual events, Includes monitoring)	\$ 1,031.40
Less than 1,000 sq.ft. with wetland or aquatic area mitigation	\$ 1.35	SF		(3 X SF total for 3 annual events, Includes monitoring)	\$ -
Larger than 1,000 sq. ft. but less than 5,000 sq.ft. of buffer mitigation	\$ 180.00	EACH		(4hr @ \$45/hr)	\$ -
Larger than 1,000 sq. ft. but less than 5,000 sq.ft. of wetland or aquatic area mitigation	\$ 270.00	EACH		(6hr @ \$45/hr)	\$ -
Larger than 5,000 sq. ft. but < 1 acre -buffer mitigation only	\$ 360.00	EACH		(8 hrs @ 45/hr)	\$ -
Larger than 5,000 sq. ft. but < 1 acre with wetland or aquatic area mitigation	\$ 450.00	EACH		(10 hrs @ \$45/hr)	\$ -
Larger than 1 acre but < 5 acres - buffer and / or wetland or aquatic area mitigation	\$ 1,600.00	DAY		(WEC crew)	\$ -
Larger than 5 acres - buffer and / or wetland or aquatic area mitigation	\$ 2,000.00	DAY		(1.25 X WEC crew)	\$ -
Monitoring, annual					
Larger than 1,000 sq.ft. but less than 5,000 wetland or buffer mitigation	\$ 720.00	EACH	6.30	(8 hrs @ 90/hr)	\$ 4,536.00
Larger than 5,000 sq.ft. but < 1 acre with wetland or aquatic area impacts	\$ 900.00	EACH		(10 hrs @ \$90/hr)	\$ -
Larger than 1 acre but < 5 acres - buffer and / or wetland or aquatic area impacts	\$ 1,440.00	DAY		(16 hrs @ \$90/hr)	\$ -
Larger than 5 acres - buffer and / or wetland or aquatic area impacts	\$ 2,400.00	DAY		(24 hrs @ \$90/hr)	\$ -
Maintenance and Monitoring Inspection (DDES), annual	\$362.25	EACH		(2.5 hrs @ \$144.90/hr)	\$ -
Maintenance and Monitoring Inspection (DDES), final	\$579.60	EACH		(4 hrs @ \$144.90/hr)	\$ -
				TOTAL	\$ 5,567.40
					Total
					\$53,031.43

APPENDIX D

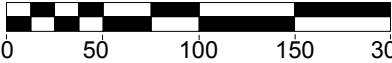
CRITICAL AREAS STUDY
MAPS
(SHEET 1/2, SHEET 2/2)

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CRITICAL AREAS STUDY MAP - EXISTING CONDITIONS
STEVE BURNSTEAD CONSTRUCTION - TIBBETTS CREEK CROSSING
PORTION OF SECTION 28, TOWNSHIP 24N, RANGE 06E, W.M.



Scale 1" = 100'



LEGEND

	WETLAND		BUFFER
	PROPERTY BOUNDARY		INVESTIGATION AREA
	STREAM		DATA SITES

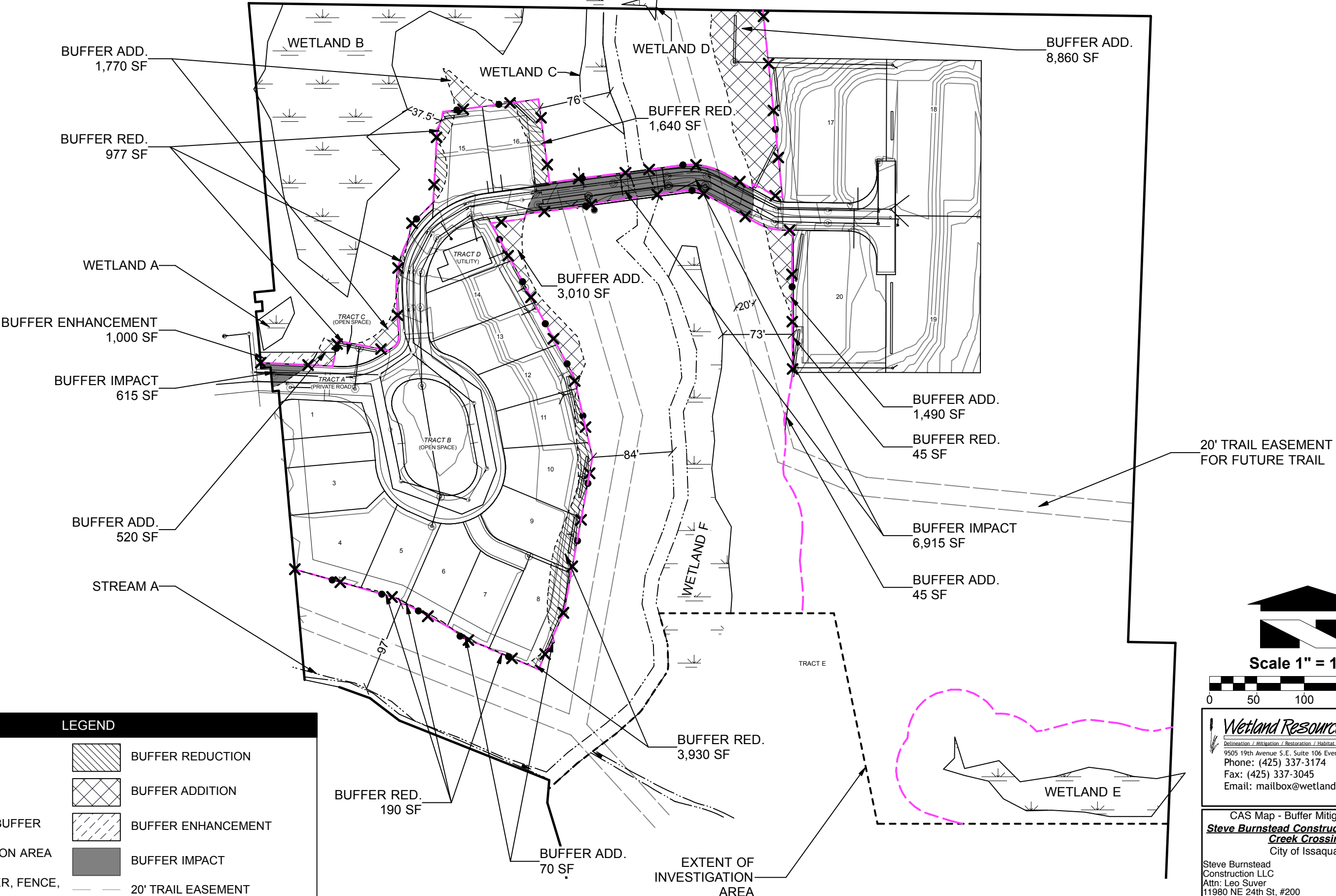
Wetland Resources, Inc.
Delineation / Mitigation / Restoration / Habitat Creation / Permit Assistance
9505 19th Avenue S.E. Suite 106 Everett, Washington 98208
Phone: (425) 337-3174
Fax: (425) 337-3045
Email: mailbox@wetlandresources.com

Critical Areas Study Map - Ex. Conditions
Steve Burnstead Construction
Tibbetts Creek Crossing
City of Issaquah

Steve Burnstead
Construction LLC
Attn: Leo Suver
11980 NE 24th St, #200
Bellevue, WA 98005

Sheet 1/1
WRI Job#: 17173
Drawn by: TA
Date: 7/11/2019

CRITICAL AREAS STUDY MAP - BUFFER MITIGATION PLAN
STEVE BURNSTEAD CONSTRUCTION - TIBBETTS CREEK CROSSING
PORTION OF SECTION 28, TOWNSHIP 24N, RANGE 06E, W.M.



LEGEND

	WETLAND		BUFFER REDUCTION
	STREAM		BUFFER ADDITION
	STANDARD BUFFER		BUFFER ENHANCEMENT
	INVESTIGATION AREA		BUFFER IMPACT
	FINAL BUFFER, FENCE, SIGNS		20' TRAIL EASEMENT

Scale 1" = 100'

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CAS Map - Buffer Mitigation Plan
Steve Burnstead Construction - Tibbetts Creek Crossing
City of Issaquah

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Sheet 2/2
WRI Job#: 17173
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